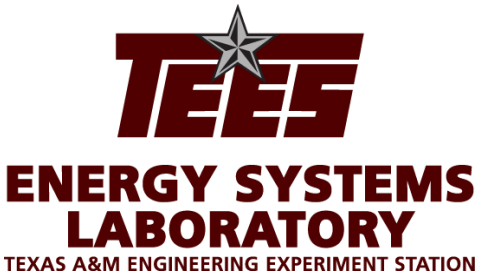
ESL-TR-17-03-01




# TAMU Project

## Energy Consumption Data Quality Assurance/Quality Control Assessment Report for the

## Month of February 2017

**Prepared for**

**Utility & Energy Services**

**Division of Administration**

**Texas A&M University**

**March 2017**

# Acknowledgements

The TAMU energy consumption and data analysis report for the month of February 2017 is a collaborative effort from the personnel of the Utilities & Energy Services, Texas A&M University and the Energy Systems Laboratory, Texas A&M Engineering Experiment Station.

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# Executive Summary

This report analyzes the energy use data collected from 584 meters in 202 buildings and complexes (approximately 20,468,000 GSF) on the campus of Texas A&M University in College Station, Texas. The report consists of five sections: 1) The summary of the monthly energy consumption per meter ID, 2) The quality control and assurance analysis of incorrect or incomplete energy use patterns, 3) Energy consumption time series plots, 4) Energy Balance plots, and 5) Energy Balance plots with filled-in consumption data. Section one contains the summary of monthly energy consumption for each of the TAMU buildings. Section two includes the reviews on each of those building energy use patterns that presented problems in the metered data. Section three and four are a collection of the plots generated for the energy use analysis, as reference to indicate and validate the quality of the metered energy data. The Section five includes the energy balance plots with filled-in energy data.

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# I. Summary of Monthly Consumption

Table I-1 February 2017 Monthly Consumption for TAMU Buildings

| TAMU# | Building Name | Area ( $ft^2$ ) | MeterID | Type | Monthly Consumption | Units | Comments |
|---|---|---|---|---|---|---|---|
| 0270 | Emerging Technologies Building | 305,316 | 007469 | ELE | 171,846 | kWh | |
| 0270 | Emerging Technologies Building | 305,316 | 007470 | ELE | 43,435 | kWh | |
| 0270 | Emerging Technologies Building | 305,316 | 007471 | CHW | 1,093,699 | mBtu | |
| 0270 | Emerging Technologies Building | 305,316 | 007475 | HHW | 335,041 | mBtu | |
| 0275 | Liberal Arts and Arts & Humanities Building | 107,500 | 007715 | ELE | 52,734 | kWh | |
| 0275 | Liberal Arts and Arts & Humanities Building | 107,500 | 007716 | CHW | 299,445 | mBtu | |
| 0275 | Liberal Arts and Arts & Humanities Building | 107,500 | 007717 | HHW | 91,434 | mBtu | |
| 0290 | Wells Residence Hall | 67,283 | 006870 | ELE | 38,523 | kWh | |
| 0290 | Wells Residence Hall | 67,283 | 001984 | CHW | 597,518 | mBtu | (2) |
| 0290 | Wells Residence Hall | 67,283 | 001988 | HHW | 423,494 | mBtu | (2) |
| 0291 | Rudder Residence Hall | 67,283 | 000351 | ELE | 42,914 | kWh | |
| 0291 | Rudder Residence Hall | 67,283 | 002132 | CHW | 698,424 | mBtu | (2) |
| 0291 | Rudder Residence Hall | 67,283 | 002136 | HHW | 466,848 | mBtu | (2) |
| 0292 | Eppright Residence Hall | 67,283 | 000002 | ELE | 43,383 | kWh | |
| 0292 | Eppright Residence Hall | 67,283 | 002262 | CHW | 277,096 | mBtu | |
| 0292 | Eppright Residence Hall | 67,283 | 002266 | HHW | 150,734 | mBtu | |
| 0293 | Appelt Residence Hall | 82,767 | 000003 | ELE | 54,732 | kWh | |
| 0293 | Appelt Residence Hall | 82,767 | 002062 | CHW | 609,907 | mBtu | (2) |
| 0293 | Appelt Residence Hall | 82,767 | 002066 | HHW | 295,592 | mBtu | (2) |
| 0294 | Lechner Residence Hall | 59,541 | 000004 | ELE | 45,535 | kWh | |
| 0294 | Lechner Residence Hall | 59,541 | 002285 | CHW | 556,594 | mBtu | |
| 0294 | Lechner Residence Hall | 59,541 | 002289 | HHW | 474,681 | mBtu | |
| 0296-0297 | Mitchell Inst. For Fundamental Phys & Astronomy | 189,617 | 006536 | ELE | 112,235 | kWh | |
| 0296-0297 | Mitchell Inst. For Fundamental Phys & Astronomy | 189,617 | 006537 | ELE | 107,006 | kWh | |
| 0296-0297 | Mitchell Inst. For Fundamental Phys & Astronomy | 189,617 | 006534 | CHW | 582,294 | mBtu | |
| 0296-0297 | Mitchell Inst. For Fundamental Phys & Astronomy | 189,617 | 006535 | HHW | 206,175 | mBtu | |
| 0353 | Bright Aerospace Building | 148,837 | 001569 | ELE | 157,323 | kWh | |
| 0353 | Bright Aerospace Building | 148,837 | 002746 | CHW | 909,894 | mBtu | (2) |
| 0353 | Bright Aerospace Building | 148,837 | 002757 | HHW | 81,728 | mBtu | |
| 0358 | Davis Football Player Development Center | 20,026 | 007699 | ELE | 28,415 | kWh | |
| 0358 | Davis Football Player Development Center | 20,026 | 007701 | CHW | 111,588 | mBtu | |
| 0358 | Davis Football Player Development Center | 20,026 | 007702 | HHW | 12,736 | mBtu | |
| 0361 | Bright Football Complex | 124,971 | 008461 | ELE | 182,200 | kWh | |
| 0361 | Bright Football Complex | 124,971 | 002547 | CHW | 633,562 | mBtu | |
| 0361 | Bright Football Complex | 124,971 | 002551 | HHW | 151,077 | mBtu | |
| 0367 | Kyle Field | 489,000 | 000336 | ELE | 130,455 | kWh | |
| 0367 | Kyle Field | 489,000 | 008861 | ELE | 87,472 | kWh | |
| 0367 | Kyle Field | 489,000 | 008862 | ELE | 76,446 | kWh | * |
| 0367 | Kyle Field | 489,000 | 008863 | ELE | 152,173 | kWh | |
| 0367 | Kyle Field | 489,000 | 008864 | ELE | 173,412 | kWh | |
| 0367 | Kyle Field | 489,000 | 008865 | ELE | 45,837 | kWh | |
| 0367 | Kyle Field | 489,000 | 008866 | ELE | 122,178 | kWh | |
| 0367 | Kyle Field | 489,000 | 008867 | ELE | 151,461 | kWh | |
| 0367 | Kyle Field | 489,000 | 008868 | ELE | 85,390 | kWh | |
| 0367 | Kyle Field | 489,000 | 008852 | CHW | 1,548,632 | mBtu | |
| 0367 | Kyle Field | 489,000 | 008026 | CHW | 1,829,301 | mBtu | |
| 0367 | Kyle Field | 489,000 | 008856 | HHW | 266,155 | mBtu | |
| 0367 | Kyle Field | 489,000 | 008027 | HHW | 1,300,482 | mBtu | |
| 0376 | Chemistry Building Addition | 115,797 | 006229 | ELE | 168,978 | kWh | |
| 0376 | Chemistry Building Addition | 115,797 | 006230 | ELE | 110,373 | kWh | |
| 0376 | Chemistry Building Addition | 115,797 | 007115 | CHW | 1,437,981 | mBtu | |
| 0376 | Chemistry Building Addition | 115,797 | 007119 | HHW | 1,057,947 | mBtu | |
| 0383 | Koldus Building | 110,272 | 001488 | ELE | 148,549 | kWh | |
| 0383 | Koldus Building | 110,272 | 002863 | CHW | 414,007 | mBtu | |
| 0383 | Koldus Building | 110,272 | 002874 | HHW | 170,058 | mBtu | |
| 0384 | Sanders Corps of Cadets Center | 19,363 | 001554 | ELE | 23,713 | kWh | |
| 0384 | Sanders Corps of Cadets Center | 19,363 | 002583 | CHW | 151,766 | mBtu | |
| 0384 | Sanders Corps of Cadets Center | 19,363 | 002587 | HHW | 98,127 | mBtu | |
| 0325-0385 | CE TTI Office & Lab Building | 157,844 | 009122 | ELE | 156,654 | kWh | |
| 0325-0385 | CE TTI Office & Lab Building | 157,844 | 009123 | CHW | 811,998 | mBtu | (1) |
| 0325-0385 | CE TTI Office & Lab Building | 157,844 | 009124 | HHW | 158,396 | mBtu | |
| 0386 | Jack E. Brown Chemical Engineering Building | 205,000 | 001428 | ELE | 139,832 | kWh | |
| 0386 | Jack E. Brown Chemical Engineering Building | 205,000 | 001429 | ELE | 313,271 | kWh | |
| 0386 | Jack E. Brown Chemical Engineering Building | 205,000 | 002250 | CHW | 2,006,652 | mBtu | |
| 0386 | Jack E. Brown Chemical Engineering Building | 205,000 | 006871 | CHW | 101,817 | mBtu | |
| 0386 | Jack E. Brown Chemical Engineering Building | 205,000 | 002254 | HHW | 536,433 | mBtu | |
| 0387 | Richardson Petroleum Engineering Building | 113,700 | 005870 | ELE | 78,338 | kWh | |
| 0387 | Richardson Petroleum Engineering Building | 113,700 | 005872 | ELE | 97,307 | kWh | |
| 0387 | Richardson Petroleum Engineering Building | 113,700 | 005805 | CHW | 660,391 | mBtu | |
| 0387 | Richardson Petroleum Engineering Building | 113,700 | 005809 | HHW | 234,244 | mBtu | |
| 0391-0392 | James J. Cain'51 and Mechanical Engineering Office Building | 173,481 | 001573 | ELE | 186,342 | kWh | |
| 0391-0392 | James J. Cain'51 and Mechanical Engineering Office Building | 173,481 | 002906 | CHW | 1,095,292 | mBtu | |
| 0391-0392 | James J. Cain'51 and Mechanical Engineering Office Building | 173,481 | 002910 | HHW | 322,382 | mBtu | |

Table I-1 February 2017 Monthly Consumption for TAMU Buildings (*Continued*)

| TAMU# | Building Name | Area ( $ft^2$ ) | MeterID | Type | Monthly Consumption | Units | Comments |
|---|---|---|---|---|---|---|---|
| 0394 | Underwood Residence Hall | 81,730 | 000014 | ELE | 50,716 | kWh | |
| 0394 | Underwood Residence Hall | 81,730 | 002117 | CHW | 422,347 | mBtu | (1) |
| 0394 | Underwood Residence Hall | 81,730 | 002121 | HHW | 275,856 | mBtu | (1) |
| 0398 | Langford Architecture Center Building A | 116,619 | 003806 | ELE | 114,038 | kWh | |
| 0398 | Langford Architecture Center Building A | 116,619 | 003951 | CHW | 528,263 | mBtu | (2) |
| 0398 | Langford Architecture Center Building A | 116,619 | 003955 | HHW | 264,516 | mBtu | (2) |
| 0400-0402-1405 | Spence Hall, Briggs Hall, and Ash II LLC | 108,555 | 009386 | ELE | 82,118 | kWh | |
| 0400 | Spence Hall Dorm 1 | 38,907 | 009290 | ELE | 12,804 | kWh | |
| 0400 | Spence Hall Dorm 1 | 38,907 | 009291 | ELE | 15,117 | kWh | |
| 0400-1405 | Spence Hall and Ash II LLC | 72,038 | 009292 | CHW | 320,690 | mBtu | |
| 0400-1405 | Spence Hall and Ash II LLC | 72,038 | 009296 | HHW | 139,544 | mBtu | |
| 1405 | Ash II LLC | 33,131 | 009387 | CHW | 125,167 | mBtu | |
| 1405 | Ash II LLC | 33,131 | 009391 | HHW | 29,867 | mBtu | |
| 0402 | Briggs Hall Dorm 3 | 36,517 | 009322 | ELE | 14,784 | kWh | |
| 0402 | Briggs Hall Dorm 3 | 36,517 | 009323 | ELE | 11,989 | kWh | |
| 0402 | Briggs Hall Dorm 3 | 36,517 | 009324 | CHW | 213,007 | mBtu | |
| 0402 | Briggs Hall Dorm 3 | 36,517 | 009328 | HHW | 84,443 | mBtu | |
| 0401-0403-1404 | Kiest Hall, Fountain Hall, and Plank LLC | 108,752 | 009370 | ELE | 80,679 | kWh | |
| 0401 | Kiest Hall Dorm 2 | 38,815 | 009306 | ELE | 12,539 | kWh | |
| 0401 | Kiest Hall Dorm 2 | 38,815 | 009307 | ELE | 13,355 | kWh | |
| 0401-1404 | Kiest Hall, and Plank LLC | 72,052 | 009308 | CHW | 379,789 | mBtu | |
| 0401-1404 | Kiest Hall, and Plank LLC | 72,052 | 009312 | HHW | 153,956 | mBtu | |
| 1404 | Plank LLC | 33,237 | 009372 | CHW | 173,637 | mBtu | |
| 1404 | Plank LLC | 33,237 | 009376 | HHW | 49,596 | mBtu | |
| 0403 | Fountain Hall Dorm 4 | 36,700 | 009338 | ELE | 13,245 | kWh | |
| 0403 | Fountain Hall Dorm 4 | 36,700 | 009339 | ELE | 12,123 | kWh | |
| 0403 | Fountain Hall Dorm 4 | 36,700 | 009340 | CHW | 203,195 | mBtu | |
| 0403 | Fountain Hall Dorm 5 | 36,700 | 009344 | HHW | 84,331 | mBtu | |
| 0404-0406-1403 | Gainer Hall, Leonard Hall and Ash LLC | 90,072 | 009401 | ELE | 66,689 | kWh | |
| 0406-1403 | Leonard Hall - Dorm 7 and Ash LLC | 53,508 | 007982 | CHW | 293,271 | mBtu | |
| 0406-1403 | Leonard Hall - Dorm 7 and Ash LLC | 53,508 | 007983 | HHW | 113,453 | mBtu | |
| 0406 | Leonard Hall - Dorm 7 | 36,222 | 008011 | ELE | 12,033 | kWh | |
| 0406 | Leonard Hall - Dorm 7 | 36,222 | 008012 | ELE | 13,877 | kWh | |
| 1403 | H. Grady Ash, Jr. '58 Leadership Learning Center | 17,286 | 008005 | CHW | 82,953 | mBtu | |
| 1403 | H. Grady Ash, Jr. '58 Leadership Learning Center | 17,286 | 008006 | HHW | 22,634 | mBtu | |
| 0404 | Gainer Hall Dorm 5 | 36,564 | 009354 | ELE | 11,068 | kWh | |
| 0404 | Gainer Hall Dorm 5 | 36,564 | 009355 | ELE | 11,249 | kWh | |
| 0404 | Gainer Hall Dorm 5 | 36,564 | 009356 | CHW | 180,965 | mBtu | |
| 0404 | Gainer Hall Dorm 5 | 36,564 | 009360 | HHW | 87,838 | mBtu | |
| 0405-0407-1402 | Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center | 91,310 | 007721 | ELE | 69,925 | kWh | |
| 0407-1402 | Harrell Hall - Dorm 8 and Buzbee LLC | 54,443 | 007722 | CHW | 267,285 | mBtu | |
| 0407-1402 | Harrell Hall - Dorm 8 and Buzbee LLC | 54,443 | 007723 | HHW | 89,182 | mBtu | |
| 0405 | Lacy Hall - Dorm 6 | 36,867 | 007922 | ELE | 25,658 | kWh | |
| 0405 | Lacy Hall - Dorm 6 | 36,867 | 007918 | CHW | 231,059 | mBtu | |
| 0405 | Lacy Hall - Dorm 6 | 36,867 | 007919 | HHW | 119,212 | mBtu | |
| 0407 | Harrell Hall - Dorm 8 | 36,943 | 007729 | ELE | 25,386 | kWh | |
| 1402 | Buzbee Leadership Learning Center | 17,500 | 007725 | CHW | 140,954 | mBtu | |
| 1402 | Buzbee Leadership Learning Center | 17,500 | 007726 | HHW | 22,189 | mBtu | |
| 0412 | Moses Residence Hall | 40,828 | 000027 | ELE | 31,483 | kWh | |
| 0412 | Moses Residence Hall | 40,828 | 002384 | CHW | 381,205 | mBtu | |
| 0412 | Moses Residence Hall | 40,828 | 002395 | HHW | 215,281 | mBtu | |
| 0415 | Davis-Gary Residence Hall | 40,828 | 000030 | ELE | 31,684 | kWh | |
| 0415 | Davis-Gary Residence Hall | 40,828 | 002532 | CHW | 325,277 | mBtu | |
| 0415 | Davis-Gary Residence Hall | 40,828 | 002543 | HHW | 236,696 | mBtu | |
| 0419 | Legett Residence Hall | 45,134 | 000031 | ELE | 16,906 | kWh | (2) |
| 0419 | Legett Residence Hall | 45,134 | 002218 | CHW | 236,143 | mBtu | (2) |
| 0419 | Legett Residence Hall | 45,134 | 002222 | HHW | 117,789 | mBtu | (2) |
| 0420 | Milner Hall | 48,268 | 009144 | ELE | 22,725 | kWh | |
| 0420 | Milner Hall | 48,268 | 009145 | CHW | 113,086 | mBtu | |
| 0420 | Milner Hall | 48,268 | 009146 | HHW | 65,082 | mBtu | |
| 0422 | Walton Residence Hall | 51,494 | 000378 | ELE | 57,722 | kWh | |
| 0422 | Walton Residence Hall | 51,494 | 002364 | HHW | 77,780 | mBtu | |
| 0424 | Hotard Hall | 18,500 | 000032 | ELE | 12,557 | kWh | |
| 0424 | Hotard Hall | 18,500 | 002657 | CHW | 97,698 | mBtu | |
| 0424 | Hotard Hall | 18,500 | 002668 | HHW | 77,750 | mBtu | |
| 0425 | Henderson Hall | 22,185 | 001553 | ELE | 13,526 | kWh | |
| 0425 | Henderson Hall | 22,185 | 002607 | CHW | 111,246 | mBtu | (1) |
| 0425 | Henderson Hall | 22,185 | 002611 | HHW | 76,795 | mBtu | (1) |
| 0426-0427-0428 | FHK Complex | 154,349 | 000331 | ELE | 112,172 | kWh | |
| 0426-0427-0428 | FHK Complex | 154,349 | 002848 | CHW | 869,130 | mBtu | |
| 0426-0427-0428 | FHK Complex | 154,349 | 002859 | HHW | 657,222 | mBtu | |
| 0430 | Schumacher Residence Hall | 38,957 | 000034 | ELE | 31,812 | kWh | |
| 0430 | Schumacher Residence Hall | 38,957 | 002015 | CHW | 213,374 | mBtu | |
| 0430 | Schumacher Residence Hall | 38,957 | 002030 | HHW | 131,641 | mBtu | |

Table I-1 February 2017 Monthly Consumption for TAMU Buildings (*Continued*)

| TAMU# | Building Name | Area ( $ft^2$ ) | MeterID | Type | Monthly Consumption | Units | Comments |
|---|---|---|---|---|---|---|---|
| 0359 | Architecture Building B | 28,545 | 005518 | ELE | 20,574 | kWh | |
| 0432 | Architecture Building C | 73,020 | 005584 | ELE | 78,426 | kWh | |
| 0359-0432 | Architecture Building B&C | 101,565 | 006419 | CHW | 491,296 | mBtu | |
| 0359-0432 | Architecture Building B&C | 101,565 | 006423 | HHW | 259,173 | mBtu | |
| 0434 | Luedecke Building (Cyclotron) | 80,646 | 005555 | ELE | 95,628 | kWh | *, (2) |
| 0434 | Luedecke Building (Cyclotron) | 80,646 | 005558 | ELE | 644,099 | kWh | *, (2) |
| 0434 | Luedecke Building (Cyclotron) | 80,646 | 006664 | CHW | 1,211,896 | mBtu | *, (2) |
| 0434 | Luedecke Building (Cyclotron) | 80,646 | 006668 | HHW | 180,616 | mBtu | *, (2) |
| 0435 | Harrington Education Center Office Tower | 130,844 | 001546 | ELE | 108,065 | kWh | |
| 0435 | Harrington Education Center Office Tower | 130,844 | 002792 | CHW | 590,037 | mBtu | |
| 0435 | Harrington Education Center Office Tower | 130,844 | 002796 | HHW | 394,620 | mBtu | |
| 0436 | Reed-McDonald Building | 77,435 | 006868 | ELE | 79,135 | kWh | |
| 0436 | Reed-McDonald Building | 77,435 | 002419 | CHW | 596,080 | mBtu | |
| 0436 | Reed-McDonald Building | 77,435 | 002423 | HHW | 363,365 | mBtu | |
| 0438 | Harrington Education Center Classroom Building | 61,860 | 003630 | ELE | 36,764 | kWh | |
| 0438 | Harrington Education Center Classroom Building | 61,860 | 002784 | CHW | 140,091 | mBtu | |
| 0438 | Harrington Education Center Classroom Building | 61,860 | 002788 | HHW | 4,731 | mBtu | |
| 0433-0440-0441-0442-0447 | Mosher Commons Krueger Dunn Aston | 577,584 | 009099 | ELE | 349,581 | kWh | |
| 0433 | Mosher Residence Hall | 155,430 | 009083 | ELE | 97,537 | kWh | (2) |
| 0433 | Mosher Residence Hall | 155,430 | 002485 | CHW | 1,453,585 | mBtu | (2) |
| 0433 | Mosher Residence Hall | 155,430 | 002489 | HHW | 674,139 | mBtu | (2) |
| 0440 | Commons Hall | 84,500 | 009237 | CHW | 310,863 | mBtu | |
| 0440 | Commons Hall | 84,500 | 009238 | HHW | 199,588 | mBtu | |
| 0441 | Krueger Residence Hall | 112,133 | 009091 | ELE | 75,456 | kWh | |
| 0441 | Krueger Residence Hall | 112,133 | 002504 | CHW | 558,159 | mBtu | |
| 0441 | Krueger Residence Hall | 112,133 | 002500 | HHW | 358,211 | mBtu | |
| 0442 | Dunn Residence Hall | 112,133 | 009095 | ELE | 109,420 | kWh | |
| 0442 | Dunn Residence Hall | 112,133 | 002519 | CHW | 667,918 | mBtu | |
| 0442 | Dunn Residence Hall | 112,133 | 002515 | HHW | 398,092 | mBtu | |
| 0447 | Aston Residence Hall | 113,388 | 009087 | ELE | 66,819 | kWh | |
| 0447 | Aston Residence Hall | 113,388 | 002474 | CHW | 542,168 | mBtu | #, (1) |
| 0447 | Aston Residence Hall | 113,388 | 002470 | HHW | 609,804 | mBtu | |
| 0443 | Oceanography & Meteorology Building | 180,316 | 005322 | ELE | 159,315 | kWh | |
| 0443 | Oceanography & Meteorology Building | 180,316 | 005323 | ELE | 62,075 | kWh | |
| 0443 | Oceanography & Meteorology Building | 180,316 | 006388 | CHW | 721,184 | mBtu | #, (1), (2) |
| 0443 | Oceanography & Meteorology Building | 180,316 | 006392 | HHW | 325,746 | mBtu | (2) |
| 0444 | Peterson Building | 84,831 | 004714 | ELE | 152,389 | kWh | * |
| 0444 | Peterson Building | 84,831 | 002922 | CHW | 878,240 | mBtu | |
| 0444 | Peterson Building | 84,831 | 006435 | HHW | 366,135 | mBtu | |
| 0445-0517 | Teague Research Center and DPC Annex | 89,735 | 003948 | ELE | 25,668 | kWh | |
| 0445-0517 | Teague Research Center and DPC Annex | 89,735 | 004719 | ELE | 49,511 | kWh | |
| 0445 | Teague Research Center | 63,515 | 006411 | CHW | 178,941 | mBtu | (1), (2) |
| 0445 | Teague Research Center | 63,515 | 006415 | HHW | 37,024 | mBtu | (1), (2) |
| 0517 | DPC Annex | 26,220 | 006563 | CHW | 341,715 | mBtu | (1), (2) |
| 0517 | DPC Annex | 26,220 | 006567 | HHW | 246,502 | mBtu | (2) |
| 0446 | Rudder Theatre Complex | 209,293 | 002977 | ELE | 55,366 | kWh | *, (2) |
| 0446 | Rudder Theatre Complex | 209,293 | 002980 | ELE | 30,835 | kWh | *, (2) |
| 0446 | Rudder Theatre Complex | 209,293 | 004297 | CHW | 587,116 | mBtu | *, (2) |
| 0446 | Rudder Theatre Complex | 209,293 | 004309 | HHW | 308,139 | mBtu | *, (2) |
| 0446 | Rudder Tower | 92,947 | 001550 | ELE | 25,444 | kWh | |
| 0446 | Rudder Tower | 92,947 | 001551 | ELE | 59,064 | kWh | * |
| 0446 | Rudder Tower | 92,947 | 002455 | CHW | 341,193 | mBtu | (1) |
| 0446 | Rudder Tower | 92,947 | 002459 | HHW | 284,512 | mBtu | |
| 0448 | Adams Band Hall | 55,248 | 000978 | ELE | 56,159 | kWh | |
| 0448 | Adams Band Hall | 55,248 | 002555 | CHW | 436,432 | mBtu | |
| 0448 | Adams Band Hall | 55,248 | 002566 | HHW | 295,402 | mBtu | |
| 0449 | Biological Sciences Building - West | 96,038 | 003978 | ELE | 172,278 | kWh | |
| 0449 | Biological Sciences Building - West | 96,038 | 003981 | CHW | 882,453 | mBtu | |
| 0449 | Biological Sciences Building - West | 96,038 | 003985 | HHW | 336,138 | mBtu | |
| 0450 | Duncan Dining Hall | 128,482 | 000300 | ELE | 95,078 | kWh | |
| 0450 | Duncan Dining Hall | 128,482 | 002998 | CHW | 379,054 | mBtu | |
| 0450 | Duncan Dining Hall | 128,482 | 003009 | HHW | 90,957 | mBtu | |
| 0454 | MSC (East Main) | 392,000 | 007600 | ELE | 269,206 | kWh | |
| 0454 | MSC (West Main) | 392,000 | 007601 | ELE | 204,274 | kWh | |
| 0454 | MSC BOR | 392,000 | 008047 | ELE | 18,715 | kWh | |
| 0454 | MSC | 392,000 | 007584 | CHW | 1,712,919 | mBtu | |
| 0454 | MSC BOR | 392,000 | 004184 | CHW | 316,905 | mBtu | |
| 0454 | MSC | 392,000 | 007585 | HHW | 414,796 | mBtu | |
| 0454 | MSC BOR | 392,000 | 004196 | HHW | 262,984 | mBtu | |
| 0456 | Military Sciences Building | 43,808 | 006939 | CHW | 369,404 | mBtu | * |
| 0456 | Military Sciences Building | 43,808 | 006943 | HHW | 204,948 | mBtu | * |
| 0457 | TAES Annex Building | 16,364 | 005863 | ELE | 13,183 | kWh | |
| 0457 | TAES Annex Building | 16,364 | 005913 | CHW | 41,665 | mBtu | |
| 0457 | TAES Annex Building | 16,364 | 005917 | HHW | 21,181 | mBtu | |

Table I-1 February 2017 Monthly Consumption for TAMU Buildings (*Continued*)

| TAMU# | Building Name | Area ( $ft^2$ ) | MeterID | Type | Monthly Consumption | Units | Comments |
|---|---|---|---|---|---|---|---|
| 0461 | Coke Building | 24,466 | 004008 | ELE | 27,101 | kWh | |
| 0461 | Coke Building | 24,466 | 005307 | CHW | 60,279 | mBtu | |
| 0461 | Coke Building | 24,466 | 004023 | HHW | 13,399 | mBtu | |
| 0462 | Academic Building | 82,555 | 005861 | ELE | 19,913 | kWh | |
| 0462 | Academic Building | 82,555 | 005903 | ELE | 32,715 | kWh | |
| 0462 | Academic Building | 82,555 | 005905 | CHW | 394,204 | mBtu | |
| 0462 | Academic Building | 82,555 | 005909 | HHW | 275,174 | mBtu | |
| 0463 | Psychology Building | 48,215 | 001575 | ELE | 37,077 | kWh | |
| 0463 | Psychology Building | 48,215 | 002941 | CHW | 297,267 | mBtu | (2) |
| 0463 | Psychology Building | 48,215 | 002945 | HHW | 68,933 | mBtu | |
| 0464 | State Chemist Building | 20,027 | 005839 | ELE | 4,480 | kWh | |
| 0464 | State Chemist Building | 20,027 | 005837 | ELE | 2,937 | mBtu | |
| 0464 | State Chemist Building | 20,027 | 005841 | HHW | 23,387 | mBtu | |
| 0465 | Butler Hall | 29,699 | 003997 | ELE | 28,931 | kWh | |
| 0465 | Butler Hall | 29,699 | 004000 | CHW | 142,455 | mBtu | |
| 0465 | Butler Hall | 29,699 | 004004 | HHW | 88,432 | mBtu | |
| 0467 | Biological Sciences Building - East | 62,273 | 001543 | ELE | 169,584 | kWh | |
| 0467 | Biological Sciences Building - East | 62,273 | 003851 | CHW | 581,519 | mBtu | #, (1) |
| 0467 | Biological Sciences Building - East | 62,273 | 003862 | HHW | 119,160 | mBtu | |
| 0468 | Evans Library | 712,093 | 000304 | ELE | 228,322 | kWh | |
| 0468 | Evans Library | 712,093 | 000318 | ELE | 129,193 | kWh | |
| 0468 | Evans Library | 712,093 | 000319 | ELE | 87,519 | kWh | |
| 0468 | Evans Library | 712,093 | 000320 | ELE | 75,116 | kWh | * |
| 0468 | Evans Library | 712,093 | 006429 | ELE | 89,378 | kWh | * |
| 0468 | Evans Library | 712,093 | 003701 | CHW | 788,177 | mBtu | |
| 0468 | Evans Library | 712,093 | 003895 | CHW | 916,582 | mBtu | |
| 0468 | Evans Library | 712,093 | 003903 | CHW | 199,628 | mBtu | |
| 0468 | Evans Library | 712,093 | 003911 | CHW | 1,225,624 | mBtu | |
| 0468 | Evans Library | 712,093 | 003712 | HHW | 192,657 | mBtu | |
| 0468 | Evans Library | 712,093 | 003899 | HHW | 138,444 | mBtu | |
| 0468 | Evans Library | 712,093 | 003907 | HHW | 67,620 | mBtu | |
| 0468 | Evans Library | 712,093 | 003922 | HHW | 94,603 | mBtu | |
| 0468 | Evans Library | 712,093 | 005303 | HHW | 47,011 | mBtu | |
| 0469 | Central Campus Parking Garage | 251,304 | 000306 | ELE | 42,792 | kWh | * |
| 0469 | Central Campus Parking Garage | 2,844 | 003716 | CHW | 16,143 | mBtu | |
| 0469 | Central Campus Parking Garage | 2,844 | 003720 | HHW | 8,738 | mBtu | |
| 0470 | Glasscock History Bldg | 39,887 | 006407 | ELE | 17,234 | kWh | |
| 0470 | Glasscock History Bldg | 39,887 | 006638 | CHW | 98,719 | mBtu | |
| 0470 | Glasscock History Bldg | 39,887 | 006642 | HHW | 40,627 | mBtu | |
| 0471 | Pavilion | 40,062 | 001455 | ELE | 35,946 | kWh | |
| 0471 | Pavilion | 40,062 | 002769 | CHW | 142,521 | mBtu | |
| 0471 | Pavilion | 40,062 | 002780 | HHW | 29,871 | mBtu | |
| 0472 | Animal Industries | 44,856 | 009042 | ELE | 48,635 | kWh | |
| 0472 | Animal Industries | 44,856 | 009109 | CHW | 234,242 | mBtu | |
| 0472 | Animal Industries | 44,856 | 009113 | HHW | 154,853 | mBtu | |
| 0473 | Williams Administration Building | 69,898 | 007945 | ELE | 45,506 | kWh | |
| 0473 | Williams Administration Building | 69,898 | 007946 | CHW | 252,140 | mBtu | |
| 0473 | Williams Administration Building | 69,898 | 007947 | HHW | 138,797 | mBtu | |
| 0474 | YMCA Building | 36,035 | 007524 | ELE | 22,209 | kWh | |
| 0474 | YMCA Building | 36,035 | 007525 | CHW | 79,455 | mBtu | |
| 0474 | YMCA Building | 36,035 | 007526 | HHW | 15,184 | mBtu | |
| 0476 | Francis Hall | 36,850 | 008015 | ELE | 32,051 | kWh | |
| 0476 | Francis Hall | 36,850 | 008033 | CHW | 172,935 | mBtu | |
| 0476 | Francis Hall | 36,850 | 008034 | HHW | 27,309 | mBtu | |
| 0477 | Anthropology Building | 51,592 | 001558 | ELE | 31,057 | kWh | |
| 0477 | Anthropology Building | 51,592 | 003664 | CHW | 232,721 | mBtu | |
| 0477 | Anthropology Building | 51,592 | 003668 | HHW | 106,297 | mBtu | |
| 0478 | Scoates Hall | 62,228 | 007961 | ELE | 51,747 | kWh | |
| 0478 | Scoates Hall | 62,228 | 007968 | CHW | 205,481 | mBtu | |
| 0478 | Scoates Hall | 62,228 | 007969 | HHW | 93,025 | mBtu | |
| 0480 | Bolton Hall | 39,686 | 006845 | ELE | 29,783 | kWh | |
| 0480 | Bolton Hall | 39,686 | 007012 | CHW | 134,463 | mBtu | |
| 0480 | Bolton Hall | 39,686 | 007016 | HHW | 50,366 | mBtu | |
| 0481 | Heaton Hall | 13,640 | 005712 | ELE | NA | kWh | * |
| 0481 | Heaton Hall | 13,640 | 007531 | CHW | 231,011 | mBtu | #, (1) |
| 0481 | Heaton Hall | 13,640 | 007535 | HHW | 194,270 | mBtu | #, (1) |
| 0482 | Fermier Hall | 19,074 | 005779 | ELE | 12,408 | kWh | |
| 0482 | Fermier Hall | 19,074 | 005878 | CHW | 45,565 | mBtu | (2) |
| 0482 | Fermier Hall | 19,074 | 005881 | HHW | 12,096 | mBtu | (2) |

Table I-1 February 2017 Monthly Consumption for TAMU Buildings (*Continued*)

| TAMU# | Building Name | Area ( $ft^2$ ) | MeterID | Type | Monthly Consumption | Units | Comments |
|---|---|---|---|---|---|---|---|
| 0483 | Thompson Hall | 81,404 | 003688 | ELE | 68,888 | kWh | |
| 0483 | Thompson Hall | 81,404 | 003887 | CHW | 247,510 | mBtu | |
| 0483 | Thompson Hall | 81,404 | 003891 | HHW | 60,896 | mBtu | |
| 0484 | Chemistry Building | 205,393 | 007152 | ELE | 83,145 | kWh | * |
| 0484 | Chemistry Building | 205,393 | 007556 | ELE | 10,650 | kWh | |
| 0484 | Chemistry Building | 205,393 | 007557 | ELE | 24,122 | kWh | (2) |
| 0484 | Chemistry Building | 205,393 | 007559 | ELE | 149,404 | kWh | |
| 0484 | Chemistry Building | 205,393 | 007223 | CHW | 1,586,186 | mBtu | |
| 0484 | Chemistry Building | 205,393 | 007227 | HHW | 940,536 | mBtu | |
| 0490 | Halbouty Geosciences Building | 120,874 | 006691 | ELE | 62,335 | kWh | |
| 0490 | Halbouty Geosciences Building | 120,874 | 006695 | ELE | 93,898 | kWh | |
| 0490 | Halbouty Geosciences Building | 120,874 | 006896 | CHW | 821,107 | mBtu | |
| 0490 | Halbouty Geosciences Building | 120,874 | 006913 | CHW | 543,846 | mBtu | |
| 0490 | Halbouty Geosciences Building | 120,874 | 006900 | HHW | 365,808 | mBtu | #, (1) |
| 0490 | Halbouty Geosciences Building | 120,874 | 006917 | HHW | 299,636 | mBtu | |
| 0492 | Civil Engineering Building | 56,537 | 005783 | ELE | 57,942 | kWh | * |
| 0492 | Civil Engineering Building | 56,537 | 005950 | CHW | 200,266 | mBtu | (2) |
| 0492 | Civil Engineering Building | 56,537 | 005954 | HHW | 47,401 | mBtu | (2) |
| 0495 | Sbisa Dining Hall | 94,233 | 000352 | ELE | 138,393 | kWh | |
| 0495 | Sbisa Dining Hall | 94,233 | 000353 | ELE | 120,381 | kWh | |
| 0495 | Sbisa Dining Hall | 94,233 | 001951 | CHW | 840,004 | mBtu | |
| 0495 | Sbisa Dining Hall | 94,233 | 001957 | HHW | 212,516 | mBtu | |
| 0496 | Utilities & Energy Services Central Office | 46,110 | 007706 | ELE | 10,471 | kWh | (2) |
| 0496 | Utilities & Energy Services Central Office | 46,110 | 006929 | CHW | 63,031 | mBtu | (2) |
| 0496 | Utilities & Energy Services Central Office | 46,110 | 006933 | HHW | 17,051 | mBtu | (2) |
| 0499 | Engineering Innovation Center | 28,339 | 001561 | ELE | 23,839 | kWh | * |
| 0499 | Engineering Innovation Center | 28,339 | 002672 | CHW | 66,224 | mBtu | #, (1), (2) |
| 0499 | Engineering Innovation Center | 28,339 | 002683 | HHW | 50,509 | mBtu | #, (1) |
| 0501 | Concrete Materials Laboratory | 9,600 | 005791 | ELE | 7,929 | kWh | |
| 0506 | Nagle Hall | 32,306 | 001484 | ELE | 11,326 | kWh | (2) |
| 0506 | Nagle Hall | 32,306 | 003619 | CHW | 184,403 | mBtu | (2) |
| 0506 | Nagle Hall | 32,306 | 003623 | HHW | 46,306 | mBtu | (2) |
| 0507 | Veterinary Medical Science Building | 69,367 | 003013 | ELE | 70,316 | kWh | |
| 0507 | Veterinary Medical Science Building | 69,367 | 003640 | CHW | 803,772 | mBtu | |
| 0507 | Veterinary Medical Science Building | 69,367 | 003644 | HHW | 414,227 | mBtu | |
| 0508 | Veterinary Teaching Hospital | 96,416 | 003022 | ELE | 67,348 | kWh | |
| 0508-1026 | Veterinary Teaching Hospital and Veterinary Medicine Administration | 191,096 | 004166 | CHW | 1,363,048 | mBtu | #, (1) |
| 0508-1026 | Veterinary Teaching Hospital and Veterinary Medicine Administration | 191,096 | 004170 | HHW | 615,595 | mBtu | * |
| 0511 | Heep Laboratory Building | 40,476 | 005787 | ELE | 52,410 | kWh | |
| 0511 | Heep Laboratory Building | 40,476 | 005821 | CHW | 393,988 | mBtu | #, (1) |
| 0511 | Heep Laboratory Building | 40,476 | 005825 | HHW | 212,029 | mBtu | #, (1) |
| 0512 | All Faiths Chapel | 8,999 | 004340 | ELE | 6,902 | kWh | |
| 0512 | All Faiths Chapel | 8,999 | 004288 | CHW | 42,200 | mBtu | #, (1), (2) |
| 0512 | All Faiths Chapel | 8,999 | 004293 | HHW | 51,156 | mBtu | #, (1) |
| 0513 | Doherty Building | 42,336 | 000299 | ELE | 50,855 | kWh | * |
| 0513 | Doherty Building | 42,336 | 002898 | CHW | 511,528 | mBtu | * |
| 0513 | Doherty Building | 42,336 | 002902 | HHW | 339,987 | mBtu | * |
| 0514 | Munnerlyn Astronomy & Space Sciences Engineering | 22,134 | 007558 | ELE | 10,943 | kWh | |
| 0514 | Munnerlyn Astronomy & Space Sciences Engineering | 22,134 | 007487 | CHW | 40,093 | mBtu | |
| 0514 | Munnerlyn Astronomy & Space Sciences Engineering | 22,134 | 007491 | HHW | 5,812 | mBtu | |
| 0516 | Computing Services Center | 30,014 | 005259 | ELE | 468,182 | kWh | |
| 0516 | Computing Services Center | 30,014 | 003959 | CHW | 1,425,412 | mBtu | |
| 0516 | Computing Services Center | 30,014 | 003963 | HHW | 1 | mBtu | |
| 0520 | Beutel Health Center | 63,318 | 003785 | ELE | 65,765 | kWh | |
| 0520 | Beutel Health Center | 63,318 | 003933 | CHW | 369,052 | mBtu | |
| 0520 | Beutel Health Center | 63,318 | 003944 | HHW | 139,550 | mBtu | |
| 0521 | Heldenfels Hall | 104,949 | 001547 | ELE | 91,696 | kWh | |
| 0521 | Heldenfels Hall | 104,949 | 002962 | CHW | 610,437 | mBtu | |
| 0521 | Heldenfels Hall | 104,949 | 002973 | HHW | 130,239 | mBtu | |
| 0524 | Blocker Building | 257,953 | 001545 | ELE | 188,770 | kWh | |
| 0524 | Blocker Building | 257,953 | 002914 | CHW | 910,356 | mBtu | |
| 0524 | Blocker Building | 257,953 | 002918 | HHW | 190,853 | mBtu | (2) |
| 0548 | Clements Residence Hall | 62,156 | 000048 | ELE | 36,233 | kWh | |
| 0548 | Clements Residence Hall | 62,156 | 002729 | CHW | 607,801 | mBtu | |
| 0548 | Clements Residence Hall | 62,156 | 002740 | HHW | 396,783 | mBtu | |
| 0549 | Haas Residence Hall | 69,668 | 001398 | ELE | 44,129 | kWh | |
| 0549 | Haas Residence Hall | 69,668 | 002983 | CHW | 575,990 | mBtu | |
| 0549 | Haas Residence Hall | 69,668 | 002994 | HHW | 468,323 | mBtu | |

Table I-1 February 2017 Monthly Consumption for TAMU Buildings (*Continued*)

| TAMU# | Building Name | Area ( $ft^2$ ) | MeterID | Type | Monthly Consumption | Units | Comments |
|---|---|---|---|---|---|---|---|
| 0550 | McFadden Residence Hall | 62,156 | 000339 | ELE | 39,202 | kWh | |
| 0550 | McFadden Residence Hall | 62,156 | 002188 | CHW | 648,737 | mBtu | |
| 0550 | McFadden Residence Hall | 62,156 | 002192 | HHW | 478,041 | mBtu | |
| 0652 | Neeley Residence Hall | 69,668 | 000056 | ELE | 44,908 | kWh | |
| 0652 | Neeley Residence Hall | 69,668 | 002147 | CHW | 347,718 | mBtu | |
| 0652 | Neeley Residence Hall | 69,668 | 002151 | HHW | 234,117 | mBtu | |
| 0653 | Hobby Residence Hall | 62,156 | 000057 | ELE | 50,973 | kWh | |
| 0653 | Hobby Residence Hall | 62,156 | 002401 | CHW | 598,998 | mBtu | |
| 0653 | Hobby Residence Hall | 62,156 | 002405 | HHW | 356,328 | mBtu | |
| 0682 | Wisenbaker Engineering Research Center | 177,704 | 005246 | ELE | 201,259 | kWh | |
| 0682 | Wisenbaker Engineering Research Center | 177,704 | 003879 | CHW | 778,606 | mBtu | |
| 0682 | Wisenbaker Engineering Research Center | 177,704 | 003883 | HHW | 222,551 | mBtu | |
| 0740 | McNew Laboratory | 20,904 | 005874 | ELE | 48,665 | kWh | *,(2) |
| 0740 | McNew Laboratory | 20,904 | 005974 | CHW | 374,596 | mBtu | #, (1), (2) |
| 0740 | McNew Laboratory | 20,904 | 005968 | HHW | 39,725 | mBtu | #, (1), (2) |
| 0806 | Soil Testing Labs | 5,544 | 006875 | ELE | 16,469 | kWh | |
| 0815 | Entomology Research Lab | 17,618 | 005799 | ELE | 27,053 | kWh | #, (1) |
| 0815 | Entomology Research Lab | 17,618 | 006043 | CHW | 136,223 | mBtu | (2) |
| 0880 | TVMC-Small Animal Building | 3,260 | 005958 | CHW | 25,709 | mBtu | |
| 0880 | TVMC-Small Animal Building | 3,260 | 005962 | HHW | 181 | mBtu | (2) |
| 0972 | Laboratory Animal Care Building | 52,178 | 007063 | ELE | 113,780 | kWh | |
| 0972 | Laboratory Animal Care Building | 52,178 | 007067 | ELE | 44,121 | kWh | |
| 0972 | Laboratory Animal Care Building | 52,178 | 007071 | CHW | 1,345,168 | mBtu | |
| 0972 | Laboratory Animal Care Building | 52,178 | 006991 | HHW | 398,049 | mBtu | |
| 1020 | Vivarium III | 12,234 | 005857 | ELE | 21,588 | kWh | |
| 1020 | Vivarium III | 12,234 | 005997 | CHW | 177,989 | mBtu | #, (1) |
| 1020 | Vivarium III | 12,234 | 006001 | HHW | 95,899 | mBtu | #, (1) |
| 1026 | Veterinary Medicine Administration | 94,680 | 006072 | ELE | 115,304 | kWh | |
| 1026 | Veterinary Medicine Administration | 94,680 | 006049 | CHW | 828,067 | mBtu | |
| 1026 | Veterinary Medicine Administration | 98,680 | 006053 | HHW | 518,926 | mBtu | *,(2) |
| 1041 | Texas Vet Med Diagnostic Lab | 55,169 | 001466 | ELE | 91,284 | kWh | * |
| 1041 | Texas Vet Med Diagnostic Lab | 55,169 | 001539 | ELE | 75,286 | kWh | * |
| 1041 | Texas Vet Med Diagnostic Lab | 55,169 | 003817 | CHW | 482,577 | mBtu | * |
| 1041 | Texas Vet Med Diagnostic Lab | 55,169 | 004137 | CHW | 712,572 | mBtu | * |
| 1041 | Texas Vet Med Diagnostic Lab | 55,169 | 003821 | HHW | 149,096 | mBtu | * |
| 1041 | Texas Vet Med Diagnostic Lab | 55,169 | 004130 | HHW | 156,634 | mBtu | * |
| 1042 | Forest Science Laboratory Building | 9,632 | 006036 | ELE | 19,533 | kWh | |
| 1085 | Veterinary Small Animal Hospital | 103,440 | 004136 | ELE | 203,382 | kWh | |
| 1085 | Veterinary Small Animal Hospital | 103,440 | 003656 | CHW | 1,060,288 | mBtu | |
| 1085 | Veterinary Small Animal Hospital | 103,440 | 003660 | HHW | 471,911 | mBtu | |
| 1089 | Utilities Energy Office Annex | 2,937 | 006964 | ELE | 4,749 | kWh | |
| 1146 | Biological Control Facility | 13,492 | 005795 | ELE | 29,943 | kWh | |
| 1146 | Biological Control Facility | 13,492 | 005887 | CHW | 122,537 | mBtu | (2) |
| 1146 | Biological Control Facility | 13,492 | 005891 | HHW | 61,745 | mBtu | |
| 1156 | Physical Plant Administration & Shops | 101,704 | 007483 | ELE | 94,499 | kWh | |
| 1156 | Physical Plant Administration & Shops | 101,704 | 007679 | CHW | 131,076 | mBtu | (2) |
| 1156 | Physical Plant Administration & Shops | 101,704 | 007683 | HHW | 127,580 | mBtu | |
| 1184 | Veterinary Anatomic Pathology | 17,223 | 001445 | ELE | 49,920 | kWh | |
| 1184 | Veterinary Anatomic Pathology | 17,223 | 006995 | CHW | 141,180 | mBtu | |
| 1184 | Veterinary Anatomic Pathology | 17,223 | 006999 | HHW | 100,291 | mBtu | |
| 1194 | Veterinary Large Animal Hospital | 140,865 | 005256 | ELE | 88,708 | kWh | |
| 1194 | Veterinary Large Animal Hospital | 140,865 | 003016 | ELE | 65,935 | kWh | |
| 1194 | Veterinary Large Animal Hospital | 140,865 | 007455 | ELE | 39,840 | kWh | |
| 1194 | Veterinary Large Animal Hospital | 140,865 | 003648 | CHW | 1,013,203 | mBtu | |
| 1194 | Veterinary Large Animal Hospital | 140,865 | 007456 | CHW | 224,540 | mBtu | |
| 1194 | Veterinary Large Animal Hospital | 140,865 | 003652 | HHW | 692,917 | mBtu | |
| 1194 | Veterinary Large Animal Hospital | 140,865 | 007457 | HHW | 52,967 | mBtu | |
| 1197 | Veterinary Research Building | 114,666 | 006355 | ELE | 65,266 | kWh | (2) |
| 1197 | Veterinary Research Building | 114,666 | 006359 | ELE | 32,277 | kWh | (2) |
| 1197 | Veterinary Research Building | 114,666 | 006062 | CHW | 1,164,847 | mBtu | |
| 1197 | Veterinary Research Building | 114,666 | 006066 | HHW | 488,174 | mBtu | |
| 1416 | Hullabaloo Residence Hall | 253,452 | 007845 | ELE | 175,160 | kWh | |
| 1416 | Hullabaloo Residence Hall | 253,452 | 007846 | CHW | 810,513 | mBtu | |
| 1416 | Hullabaloo Residence Hall | 253,452 | 007847 | HHW | 157,623 | mBtu | |

Table I-1 February 2017 Monthly Consumption for TAMU Buildings (*Continued*)

| TAMU# | Building Name | Area ( $ft^2$ ) | MeterID | Type | Monthly Consumption | Units | Comments |
|---|---|---|---|---|---|---|---|
| 1450 | University Apartments - Laundry at the Gardens | 1,428 | 006885 | ELE | 5,744 | kWh | |
| 1451 | University Apartments - The Gardens J | 33,535 | 006981 | ELE | 16,267 | kWh | |
| 1452 | University Apartments - The Gardens K | 33,535 | 006979 | ELE | 15,758 | kWh | |
| 1453 | University Apartments - The Gardens L | 33,535 | 006884 | ELE | 15,864 | kWh | |
| 1454 | University Apartments - The Gardens F | 33,535 | 006980 | ELE | 19,030 | kWh | * |
| 1455 | University Apartments - The Gardens G | 33,535 | 006882 | ELE | 17,109 | kWh | * |
| 1456 | University Apartments - The Gardens H | 33,535 | 007962 | ELE | 15,481 | kWh | |
| 1457 | University Apartments - The Gardens M | 33,535 | 007503 | ELE | 22,716 | kWh | |
| 1458 | University Apartments - The Gardens N | 33,535 | 007504 | ELE | 18,590 | kWh | |
| 1459 | University Apartments - The Gardens P | 33,535 | 007505 | ELE | 20,969 | kWh | |
| 1460 | University Apartments - The Gardens Q | 33,535 | 007506 | ELE | 16,666 | kWh | |
| 1497 | Utilities & Energy Services Business Office | 3,480 | 007082 | ELE | 3,564 | kWh | |
| 1497 | Utilities & Energy Services Business Office | 3,480 | 006341 | CHW | 10,411 | mBtu | |
| 1497 | Utilities & Energy Services Business Office | 3,480 | 006345 | HHW | 1,820 | mBtu | |
| 1501 | Kleberg Center | 165,031 | 007449 | ELE | 240,081 | kWh | |
| 1501 | Kleberg Center | 165,031 | 002624 | CHW | 1,115,168 | mBtu | |
| 1501 | Kleberg Center | 165,031 | 002628 | HHW | 904,933 | mBtu | |
| 1502 | Heep Center | 158,979 | 001556 | ELE | 236,616 | kWh | |
| 1502 | Heep Center | 158,979 | 002599 | CHW | 1,204,527 | mBtu | |
| 1502 | Heep Center | 158,979 | 002603 | HHW | 300,495 | mBtu | |
| 1503 | Cater-Mattil Hall | 27,958 | 007977 | ELE | 81,303 | kWh | |
| 1503 | Cater-Mattil Hall | 27,958 | 008001 | CHW | 247,059 | mBtu | |
| 1504 | Reynolds Medical Sciences Building | 169,859 | 003975 | ELE | 246,278 | kWh | (2) |
| 1504 | Reynolds Medical Sciences Building | 169,859 | 003989 | CHW | 1,729,194 | mBtu | (2) |
| 1504 | Reynolds Medical Sciences Building | 169,859 | 003993 | HHW | 823,518 | mBtu | (2) |
| 1505 | Rosenthal Meat Science & Technology Center | 30,889 | 003627 | ELE | 121,483 | kWh | |
| 1505 | Rosenthal Meat Science & Technology Center | 30,889 | 002573 | CHW | 163,518 | mBtu | |
| 1505 | Rosenthal Meat Science & Technology Center | 30,889 | 002577 | HHW | 72,144 | mBtu | |
| 1506 | Horticulture-Forest Science Building | 118,648 | 001544 | ELE | 139,579 | kWh | |
| 1506 | Horticulture-Forest Science Building | 118,648 | 003967 | CHW | 370,210 | mBtu | |
| 1506 | Horticulture-Forest Science Building | 118,648 | 003971 | HHW | 175,084 | mBtu | |
| 1507 | Biochemistry-Biophysics Building | 166,079 | 001459 | ELE | 156,831 | kWh | |
| 1507 | Biochemistry-Biophysics Building | 166,079 | 001460 | ELE | 153,237 | kWh | |
| 1507 | Biochemistry-Biophysics Building | 166,079 | 003025 | CHW | 1,105,635 | mBtu | |
| 1507 | Biochemistry-Biophysics Building | 166,079 | 003029 | HHW | 691,355 | mBtu | |
| 1508 | Price Hobgood Ag. Engineering Research Lab | 27,666 | 005638 | ELE | 23,144 | kWh | * |
| 1508 | Price Hobgood Ag. Engineering Research Lab | 27,666 | 006005 | CHW | 86,572 | mBtu | |
| 1508 | Price Hobgood Ag. Engineering Research Lab | 27,666 | 006009 | HHW | 23,305 | mBtu | |
| 1509 | Medical Sciences Library | 84,183 | 000350 | ELE | 94,790 | kWh | |
| 1509 | Medical Sciences Library | 84,183 | 003777 | CHW | 472,918 | mBtu | |
| 1509 | Medical Sciences Library | 84,183 | 003781 | HHW | 102,650 | mBtu | |
| 1510 | Wehner Building | 259,681 | 006849 | ELE | 191,499 | kWh | |
| 1510 | Wehner Building | 259,681 | 006685 | ELE | 231,542 | kWh | |
| 1510 | Wehner Building | 259,681 | 002687 | CHW | 1,251,977 | mBtu | |
| 1510 | Wehner Building | 259,681 | 002691 | HHW | 283,538 | mBtu | (2) |
| 1511 | West Campus Library Facility | 68,125 | 004342 | ELE | 80,194 | kWh | |
| 1511 | West Campus Library Facility | 68,125 | 004313 | CHW | 412,778 | mBtu | |
| 1511 | West Campus Library Facility | 68,125 | 004318 | HHW | 124,885 | mBtu | |
| 1512 | Southern Crop Improvement Greenhouse | 48,154 | 005931 | ELE | 81,903 | kWh | # (1) |
| 1513 | Borlaug Center for Southern Crop Improvement | 68,739 | 005802 | ELE | 273,632 | kWh | |
| 1513 | Borlaug Center for Southern Crop Improvement | 68,739 | 005936 | CHW | 651,070 | mBtu | |
| 1513 | Borlaug Center for southern Crop Improvement | 68,739 | 005895 | HHW | 216,364 | mBtu | |
| 1518 | TX School of Rural Public Health A | 69,079 | 005273 | ELE | 65,354 | kWh | |
| 1519 | TX School of Rural Public Health B | 24,761 | 005274 | ELE | 41,953 | kWh | # (1) |
| 1520 | TX School of Rural Public Health C | 13,264 | 005275 | ELE | 90,648 | kWh | * # (1) |
| 1518-1519-1520 | TX School of Rural Public Health A,B,C | 107,104 | 005294 | CHW | 621,267 | mBtu | |
| 1518-1519-1520 | TX School of Rural Public Health A,B,C | 107,104 | 005298 | HHW | 282,737 | mBtu | |
| 1525 | Nuclear Magnetic Resonance Facility | 37,282 | 006718 | ELE | 78,721 | kWh | |
| 1525 | Nuclear Magnetic Resonance Facility | 37,282 | 006715 | CHW | 650,908 | mBtu | |
| 1525 | Nuclear Magnetic Resonance Facility | 37,282 | 006716 | HHW | 486,132 | mBtu | (2) |
| 1530 | Interdisciplinary Life Sciences Building | 218,540 | 006286 | ELE | 356,293 | kWh | |
| 1530 | Interdisciplinary Life Sciences Building | 218,540 | 006288 | ELE | 200,866 | kWh | |
| 1530 | Interdisciplinary Life Sciences Building | 218,540 | 006290 | CHW | 2,235,847 | mBtu | |
| 1530 | Interdisciplinary Life Sciences Building | 218,540 | 006294 | HHW | 1,114,000 | mBtu | |
| 1535 | Agriculture and Life Sciences Building | 168,353 | 007205 | ELE | 109,176 | kWh | |
| 1535 | Agriculture and Life Sciences Building | 168,353 | 007206 | CHW | 405,003 | mBtu | |
| 1535 | Agriculture and Life Sciences Building | 168,353 | 007207 | HHW | 47,516 | mBtu | |

Table I-1 February 2017 Monthly Consumption for TAMU Buildings (*Continued*)

| TAMU# | Building Name | Area ( $ft^2$ ) | MeterID | Type | Monthly Consumption | Units | Comments |
|---|---|---|---|---|---|---|---|
| 1536 | AgriLife Services Building | 80,907 | 007571 | ELE | 39,765 | kWh | |
| 1536 | AgriLife Services Building | 80,907 | 007572 | CHW | 146,627 | mBtu | |
| 1536 | AgriLife Services Building | 80,907 | 007573 | HHW | 49,658 | mBtu | |
| 1537 | Agriculture Public Building | 78,480 | 009620 | ELE | 24,245 | kWh | * (2) |
| 1537 | Agriculture Public Building | 78,480 | 009621 | ELE | 37,960 | kWh | * (2) |
| 1537 | Agriculture Public Building | 78,480 | 009622 | CHW | 151,277 | mBtu | * (2) |
| 1537 | Agriculture Public Building | 78,480 | 009623 | HHW | 173,047 | mBtu | * (2) |
| 1538 | Agriculture Program Visitors Center | 12,923 | 007209 | ELE | 13,246 | kWh | |
| 1538 | Agriculture Program Visitors Center | 12,923 | 007210 | CHW | 68,252 | mBtu | |
| 1538 | Agriculture Program Visitors Center | 12,923 | 007211 | HHW | 19,907 | mBtu | |
| 1540 | Physical Education Activity Program Building | 116,900 | 007881 | ELE | 74,720 | kWh | |
| 1540 | Physical Education Activity Program Building | 116,900 | 007878 | CHW | 336,196 | mBtu | |
| 1540 | Physical Education Activity Program Building | 116,900 | 007879 | HHW | 159,761 | mBtu | |
| 1542 | Human Clinical Research Building | 22,052 | 009693 | ELE | 45,544 | kWh | |
| 1542 | Human Clinical Research Building | 22,052 | 009683 | CHW | 210,570 | mBtu | * |
| 1542 | Human Clinical Research Building | 22,052 | 009687 | HHW | 163,914 | mBtu | * |
| 1544 | Cain Garage | 498,425 | 009613 | ELE | 36,583 | kWh | * |
| 1550 | Olsen Field at Bluebell Park | 60,537 | 007560 | ELE | 117,239 | kWh | |
| 1554 | Reed Arena | 230,000 | 007582 | ELE | 145,460 | kWh | |
| 1554 | Reed Arena | 230,000 | 006243 | ELE | 628 | kWh | * |
| 1554 | Reed Arena | 230,000 | 006244 | ELE | 80,174 | kWh | * |
| 1554-1558 | Reed Arena and Cox-McFerrin Center | 328,185 | 007576 | CHW | 1,674,168 | mBtu | |
| 1554-1558 | Reed Arena and Cox-McFerrin Center | 328,185 | 007578 | HHW | 820,295 | mBtu | |
| 1558 | Cox-McFerrin Center for Aggie Basketball | 98,185 | 007581 | ELE | 66,306 | kWh | |
| 1558 | Cox-McFerrin Center for Aggie Basketball | 98,185 | 007575 | CHW | 288,177 | mBtu | |
| 1558 | Cox-McFerrin Center for Aggie Basketball | 98,185 | 007577 | HHW | 167,859 | mBtu | (2) |
| 1559 | West Campus Parking Garage | 1,541,457 | 001453 | ELE | 142,319 | kWh | |
| 1559 | West Campus Parking Garage | 13,000 | 004322 | CHW | 33,433 | mBtu | (2) |
| 1559 | West Campus Parking Garage | 13,000 | 004327 | HHW | 15,827 | mBtu | |
| 1560 | Student Recreation Center | 334,642 | 000363 | ELE | 321,164 | kWh | (2) |
| 1560 | Student Recreation Center | 334,642 | 000366 | ELE | 318,952 | kWh | (2) |
| 1560 | Student Recreation Center | 334,642 | 002933 | CHW | 3,108,890 | mBtu | (2) |
| 1560 | Student Recreation Center | 334,642 | 002937 | HHW | 1,934,085 | mBtu | (2) |
| 1589-1590 | White Creek Apartment 1 and White Creek Apts Activity Center | 176,454 | 009197 | ELE | 100,753 | kWh | |
| 1589-1590 | White Creek Apartment 1 and White Creek Apts Activity Center | 176,454 | 009198 | CHW | 325,797 | mBtu | |
| 1589-1590 | White Creek Apartment 1 and White Creek Apts Activity Center | 176,454 | 009199 | HHW | 75,101 | mBtu | |
| 1591 | White Creek Apartment 2 | 179,467 | 008528 | ELE | 114,636 | kWh | |
| 1591 | White Creek Apartment 2 | 179,467 | 008529 | CHW | 325,728 | mBtu | |
| 1591 | White Creek Apartment 2 | 179,467 | 008533 | HHW | 84,374 | mBtu | |
| 1592 | White Creek Apartment 3 | 179,467 | 008538 | ELE | 107,828 | kWh | |
| 1592 | White Creek Apartment 3 | 179,467 | 008539 | CHW | 361,110 | mBtu | |
| 1592 | White Creek Apartment 3 | 179,467 | 008543 | HHW | 62,029 | mBtu | |
| 1600 | Gilchrist TTI Building | 67,143 | 005286 | ELE | 49,531 | kWh | * |
| 1600 | Gilchrist TTI Building | 67,143 | 002649 | CHW | 197,600 | mBtu | # (1) |
| 1600 | Gilchrist TTI Building | 67,143 | 002653 | HHW | 73,519 | mBtu | # (1) |
| 1601 | International Ocean Discovery Building | 86,576 | 006351 | ELE | 104,117 | kWh | (2) |
| 1601 | International Ocean Discovery Building | 86,576 | 006382 | CHW | 189,569 | mBtu | (2) |
| 1601 | International Ocean Discovery Building | 86,576 | 008144 | CHW | 36,026 | mBtu | (2) |
| 1601 | International Ocean Discovery Building | 86,576 | 008145 | HHW | 23,595 | mBtu | (2) |
| 1604 | Offshore Technology Research Center | 40,014 | 006659 | ELE | 86,695 | kWh | |
| 1604 | Offshore Technology Research Center | 40,014 | 006660 | ELE | 247 | kWh | (2) |
| 1604 | Offshore Technology Research Center | 40,014 | 008142 | CHW | 410,685 | mBtu | * |
| 1604 | Offshore Technology Research Center | 40,014 | 008143 | HHW | 220,767 | mBtu | |
| 1606 | George Bush Presidential Library & Museum | 121,678 | 000244 | ELE | 90,928 | kWh | |
| 1606 | George Bush Presidential Library & Museum | 121,678 | 002808 | CHW | 689,434 | mBtu | |
| 1606 | George Bush Presidential Library & Museum | 121,678 | 002812 | HHW | 289,234 | mBtu | |
| 1607 | Allen Building | 133,327 | 000243 | ELE | 96,208 | kWh | |
| 1607 | Allen Building | 133,327 | 002800 | CHW | 374,533 | mBtu | |
| 1607 | Allen Building | 133,327 | 002804 | HHW | 93,076 | mBtu | |
| 1608 | Annenberg Presidential Conference Center | 65,688 | 000245 | ELE | 66,638 | kWh | |
| 1608 | Annenberg Presidential Conference Center | 65,688 | 002761 | CHW | 515,489 | mBtu | |
| 1608 | Annenberg Presidential Conference Center | 65,688 | 002765 | HHW | 313,865 | mBtu | |
| 1609 | TTI Headquarters | 66,707 | 006495 | ELE | 45,757 | kWh | * |
| 1609 | TTI Headquarters | 66,707 | 006496 | CHW | 172,375 | mBtu | |
| 1609 | TTI Headquarters | 66,707 | 006497 | HHW | 40,631 | mBtu | (2) |
| 1611 | Engineering Research Building | 68,807 | 008462 | ELE | 143,299 | kWh | |
| 1611 | Engineering Research Building | 68,807 | 008463 | CHW | 887,787 | mBtu | |
| 1611 | Engineering Research Building | 68,807 | 008467 | HHW | 478,389 | mBtu | |

Table I-1 February 2017 Monthly Consumption for TAMU Buildings (*Continued*)

| TAMU# | Building Name | Area ( $ft^2$ ) | MeterID | Type | Monthly Consumption | Units | Comments |
|---|---|---|---|---|---|---|---|
| 1800 | General Services Complex | 203,369 | 005441 | ELE | 160,195 | kWh | |
| 1800 | General Services Complex | 203,369 | 005468 | CHW | 585,029 | mBtu | |
| 1800 | General Services Complex | 203,369 | 005472 | HHW | 65,147 | mBtu | |
| 1809 | New TVMDL | 90,000 | 009652 | ELE | NA | kWh | * |
| 1809 | New TVMDL | 90,000 | 009653 | ELE | NA | mBtu | * |
| 1809 | New TVMDL | 90,000 | 009647 | CHW | 1,460,043 | mBtu | * |
| 1810 | Office of the State Chemist Building | 31,735 | 009073 | ELE | 56,255 | kWh | |
| 1810 | Office of the State Chemist Building | 31,735 | 005460 | CHW | 202,068 | mBtu | |
| 1810 | Office of the State Chemist Building | 31,735 | 005464 | HHW | 84,653 | mBtu | |
| 1811 | Vet Med Research Bldg Addition | 52,993 | 006705 | ELE | 203,780 | kWh | |
| 1811 | Vet Med Research Bldg Addition | 52,993 | 006706 | CHW | 671,498 | mBtu | |
| 1811 | Vet Med Research Bldg Addition | 52,993 | 006707 | HHW | 419,685 | mBtu | |
| 1812 | Veterinary Medicine Building 1 | 138,460 | 009404 | ELE | 185,899 | kWh | |
| 1813 | Veterinary Medicine Building 2 | 116,492 | 009418 | ELE | 2,676 | kWh | * |
| 1814 | Veterinary Medicine Building 3 | 135,470 | 009405 | ELE | 249,881 | kWh | |
| 1812-1813-1814 | Veterinary Medicine Building 1, 2 and 3 | 390,422 | 009676 | CHW | 2,059,560 | mBtu | |
| 1812-1813-1814 | Veterinary Medicine Building 1, 2 and 3 | 390,422 | 009410 | HHW | 971,463 | mBtu | |
| 1900 | Texas Institute for Genomic Medicine | 34,120 | 005548 | ELE | 74,772 | kWh | |
| 1900 | Texas Institute for Genomic Medicine | 34,120 | 005545 | CHW | 617,954 | mBtu | |
| 1900 | Texas Institute for Genomic Medicine | 34,120 | 005546 | HHW | 331,994 | mBtu | |
| 1904 | Texas A&M Institute for Preclinical Studies A | 113,559 | 006364 | ELE | 198,961 | kWh | |
| 1904 | Texas A&M Institute for Preclinical Studies A | 113,559 | 006365 | CHW | 1,280,428 | mBtu | |
| 1904 | Texas A&M Institute for Preclinical Studies A | 113,559 | 006366 | HHW | 752,325 | mBtu | |
| 1910 | National Center for Therapeutics Manufacturing | 149,924 | 007517 | ELE | 181,568 | kWh | |
| 1910 | National Center for Therapeutics Manufacturing | 149,924 | 007518 | ELE | 175,628 | kWh | |
| 1910 | National Center for Therapeutics Manufacturing | 149,924 | 007519 | CHW | 3,159,517 | mBtu | |
| 1910 | National Center for Therapeutics Manufacturing | 149,924 | 007520 | HHW | 1,570,253 | mBtu | (2) |
| 1911 | Multi-Species Research Building | 21,000 | 009138 | ELE | 25,949 | kWh | |
| 1911 | Multi-Species Research Building | 21,000 | 009129 | CHW | 252,155 | mBtu | |
| 1911 | Multi-Species Research Building | 21,000 | 009133 | HHW | 171,635 | mBtu | |
| 10226 | NCTM Manufacturing Building | 113,397 | 007648 | CHW | 2,781,043 | mBtu | |
| 10226 | NCTM Manufacturing Building | 113,397 | 007649 | HHW | 1,216,189 | mBtu | |
| 10226 | NCTM Manufacturing Building | 113,397 | 008133 | HHW | 163,475 | mBtu | |

1 mBtu = 1 000 Btu

NA: Not available
Monthly consumption in blue: Modified values
* : Missing data
# : Questionable data
(1): Consumption estimated and documented in the report *Part II - Data Analysis: Energy Use Estimation and Observations Section 2*
(2): Observation(s) documented in the report *Part II - Data Analysis: Energy Use Estimation and Observations Section 3*
(3): Missing data or changed consumption levels due to construction

# II. Data Analysis: Energy Use Estimation and Observation

# II-1 Meters with Missing Energy Consumption Data

During the month of February 2017, 47 meters in 25 buildings and complexes have missing daily data. The missing data have been filled in using consumption models based on the past data if available or using linear interpolation or some sort of average, and the monthly consumption has been estimated with the filled-in daily consumption. Table II-1 is the list of meters with missing data.

Table II-1 Meters with missing data during February 2017

| Building No. | Building Name | MeterID | Type | Unit | Original Monthly Consumption | Estimated Monthly Consumption | # of Days | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0367 | Kyle Field | 008862 | ELE | kWh | 46,349 | 76,446 | 9 | | | | | | | | | | | | | | | | | | A | A | A | A | A | A | A | A | A | A |
| 0434 | Luedecke Building (Cyclotron) | 005555 | ELE | kWh | 20,809 | 95,628 | 16 | | | | | | | | | | | | | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0434 | Luedecke Building (Cyclotron) | 005558 | ELE | kWh | 131,630 | 644,099 | 16 | | | | | | | | | | | | | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0434 | Luedecke Building (Cyclotron) | 006664 | CHW | mBtu | 413,646 | 1,211,896 | 15 | | | | | | | | | | | | | | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0434 | Luedecke Building (Cyclotron) | 006668 | HHW | mBtu | 98,453 | 180,616 | 15 | | | | | | | | | | | | | | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0444 | Peterson Building | 004714 | ELE | kWh | 152,389 | * | 1 | | | | | | | | | | | | | | | A | | | | | | | | | | | | |
| 0446 | Rudder Theatre Complex | 002977 | ELE | kWh | 53,444 | 55,366 | 1 | A | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0446 | Rudder Theatre Complex | 002980 | ELE | kWh | 29,726 | 30,835 | 1 | A | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0446 | Rudder Theatre Complex | 004297 | CHW | mBtu | 563,867 | 587,116 | 1 | M | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0446 | Rudder Theatre Complex | 004309 | HHW | mBtu | 298,470 | 308,139 | 1 | M | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0446 | Rudder Tower | 001551 | ELE | kWh | 41,982 | 59,064 | 9 | | | | | | | | | | | | | | | | | | | M | M | M | M | M | M | M | M | M |
| 0456 | Military Sciences Building | 006939 | CHW | mBtu | NA | 369,404 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0456 | Military Sciences Building | 006943 | HHW | mBtu | NA | 204,948 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0468 | Evans Library | 000320 | ELE | kWh | 75,116 | * | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0468 | Evans Library | 006429 | ELE | kWh | 89,378 | * | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0469 | Central Campus Parking Garage | 000306 | ELE | kWh | 42,792 | * | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0481 | Heaton Hall | 005712 | ELE | kWh | NA | *** | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0484 | Chemistry Building | 007152 | ELE | kWh | 46,441 | 83,145 | 12 | M | M | M | M | M | M | M | M | M | M | M | M | | | | | | | | | | | | | | | |
| 0492 | Civil Engineering Building | 005783 | ELE | kWh | 57,942 | * | 1 | | | | | | | | M | | | | | | | | | | | | | | | | | | | |
| 0499 | Enngineering Innovation Center | 001561 | ELE | kWh | 23,839 | * | 1 | | | | | | | | | | | | | | | | | | | | | | | M | | | | |
| 508-1026 | Veterinary Teaching Hospital and Veterinary Medicine Adı | 004170 | HHW | mBtu | NA | 615,595 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0513 | Doherty Building | 000299 | ELE | kWh | 5,964 | 50,855 | 25 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | | | |
| 0513 | Doherty Building | 002898 | CHW | mBtu | 112,873 | 511,528 | 22 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | | | | | |
| 0513 | Doherty Building | 002902 | HHW | mBtu | 69,928 | 339,987 | 22 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | | | | | |
| 0740 | McNew Laboratory | 005874 | ELE | kWh | 48,665 | * | 1 | | | | | | M | | | | | | | | | | | | | | | | | | | | | |
| 1026 | Veterinary Medicince Administration | 006053 | HHW | mBtu | 115,304 | 518,926 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1041 | Texas Vet Med Diagnostic Lab | 001466 | ELE | kWh | NA | 91,284 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1041 | Texas Vet Med Diagnostic Lab | 001539 | ELE | kWh | NA | 75,286 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1041 | Texas Vet Med Diagnostic Lab | 003817 | CHW | mBtu | NA | 482,577 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1041 | Texas Vet Med Diagnostic Lab | 004137 | CHW | mBtu | NA | 712,572 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1041 | Texas Vet Med Diagnostic Lab | 003821 | HHW | mBtu | NA | 149,096 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1041 | Texas Vet Med Diagnostic Lab | 004130 | HHW | mBtu | NA | 156,634 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1454 | University Apartments - The Gardens F | 006980 | ELE | kWh | NA | 19,030 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1455 | University Apartments - The Gardens G | 006882 | ELE | kWh | NA | 17,109 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1537 | Agriculture Public Building | 009620 | ELE | kWh | NA | 24,245 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1537 | Agriculture Public Building | 009621 | ELE | kWh | NA | 37,960 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1537 | Agriculture Public Building | 009622 | CHW | mBtu | NA | 151,277 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1537 | Agriculture Public Building | 009623 | HHW | mBtu | NA | 173,047 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1542 | Human Clinical Research Building | 009683 | CHW | mBtu | NA | 210,570 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1542 | Human Clinical Research Building | 009687 | HHW | mBtu | NA | 163,914 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1544 | Cain Garage | 009613 | ELE | kWh | NA | 36,583 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1554 | Reed Arena | 006243 | ELE | kWh | NA | 628 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1554 | Reed Arena | 006244 | ELE | kWh | NA | 80,174 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1809 | New TVMDL | 009652 | ELE | kWh | NA | * | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1809 | New TVMDL | 009653 | ELE | kWh | NA | * | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1809 | New TVMDL | 009647 | CHW | mBtu | 392,299 | 1,460,043 | 21 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | | | | | | |
| 1813 | Veterinary Medicine Building 2 | 009418 | ELE | kWh | 3,069 | 2,676 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |

# II-2 Meters with Estimated Consumption for Problematic Data

During the month of February 2017, 43 meters in 27 buildings have estimated daily consumption because the recorded consumption is found to be problematic or questionable. For each of these meters, alternative consumption has been estimated using the best possible method. Table II-2 lists these meters with indications of the days with estimated data. Detailed descriptions for individual cases follow.

Table II-2 Meters with problematic data during February 2017

| Building No. | Building Name /MeterID(s) | Type | Unit | Original Monthly Consumption | Estimated Monthly Consumption | # of days | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0325-0385 | CE TTI Office & Lab Building | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 009123 | CHW | mBtu | 492,087 | 811,998 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0394 | Underwood Residence Hall | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 002117 | CHW | mBtu | 346,867 | 422,347 | 16 | | | | | M | M | M | M | M | M | M | M | M | M | | | | | | M | | | | M | M | M | M | M |
| | 002121 | HHW | mBtu | 209,940 | 275,856 | 16 | | | | | M | M | M | M | M | M | M | M | M | M | | | | | | M | | | | M | M | M | M | M |
| 0425 | Henderson Hall | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 002607 | CHW | mBtu | 97,778 | 111,246 | 7 | | | | M | M | | | | | | | | | | | | | | | | | | M | | M | M | M | M |
| | 002611 | HHW | mBtu | 68,819 | 76,795 | 7 | | | | M | M | | | | | | | | | | | | | | | | | | M | | M | M | M | M |
| 0447 | Aston Residence Hall | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 002474 | CHW | mBtu | 994,289 | 542,168 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0443 | Oceanography & Meteorology Building | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 006388 | CHW | mBtu | 1,033,872 | 721,184 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0445 | Teague Research Center | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 006411 | CHW | mBtu | 273,772 | 178,941 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| | 006415 | HHW | mBtu | 156,726 | 37,024 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0517 | DPC Annex | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 006563 | CHW | mBtu | 405,473 | 341,715 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0446 | Rudder Tower | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 002455 | CHW | mBtu | 543,717 | 341,193 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0467 | Biological Sciences Building - East | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 003851 | CHW | mBtu | 757,799 | 581,519 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0481 | Heaton Hall | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 007531 | CHW | mBtu | 141,224 | 231,011 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| | 007535 | HHW | mBtu | 108,061 | 194,270 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0490 | Halbouty Geosciences Building | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 006900 | HHW | mBtu | 0 | 365,808 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0499 | Engineering Innovation Center | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 002672 | CHW | mBtu | 58,117 | 66,224 | 8 | | | | | | | | | | | | | | | | | | | | M | M | M | M | M | M | M | M | M |
| | 002683 | HHW | mBtu | 39,980 | 50,509 | 8 | | | | | | | | | | | | | | | | | | | | M | M | M | M | M | M | M | M | M |
| 508-1026 | Veterinary Teaching Hospital and Veterinary Medicine Administration | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 004166 | CHW | mBtu | 1,105,255 | 1,363,048 | 5 | | | | | | | | | | | | | | | | | | | | | | | M | M | M | M | M | M |
| 0511 | Heep Laboratory Building | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 005821 | CHW | mBtu | 339,220 | 393,988 | 12 | M | M | M | M | | | | | M | M | M | M | M | M | M | M | | | | | | | | | | | | |
| | 005825 | HHW | mBtu | 157,876 | 212,029 | 9 | | | | M | | | | | M | M | M | M | M | M | M | M | | | | | | | | | | | | |
| 0512 | All Faiths Chapel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 004288 | CHW | mBtu | 90,860 | 42,200 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| | 004293 | HHW | mBtu | 73,177 | 51,156 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0740 | McNew Laboratory | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 005974 | CHW | mBtu | 442,752 | 374,596 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| | 005968 | HHW | mBtu | 12,337 | 39,725 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 0815 | Entomology Research Lab | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 005799 | ELE | kWh | 18,263 | 27,053 | 27 | | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1020 | Vivarium III | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 005997 | CHW | mBtu | 271,803 | 177,989 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| | 006001 | HHW | mBtu | 5,988 | 95,899 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1512 | Southern Crop Improvement Greenhouse | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 005931 | ELE | kWh | 139,970 | 81,903 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1519 | TX School of Rural Public Health B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 005274 | ELE | kWh | 90,648 | 41,953 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1520 | TX School of Rural Public Health C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 005275 | ELE | kWh | 41,953 | 90,648 | 28 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| 1600 | Gilchrist TTI Building | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 002649 | CHW | mBtu | 238,108 | 197,600 | 7 | | M | M | M | M | M | M | M | | | | | | | | | | | | | | | | | | | | |
| | 002653 | HHW | mBtu | 115,697 | 73,519 | 7 | | M | M | M | M | M | M | M | | | | | | | | | | | | | | | | | | | | |

Notes: The colored cells means the consumption for the day appears to be problematic. The letter in the colored cell indicates the method for estimation. M: model, F: multiplication factor, L: linear interpolation, A: average, and C: correction of the reset cumulative reading

# CE TTI Office & Lab Building (TAMU Bldg #325-385)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 009123 | 28 | 2/1/2017 – 2/28/2017 | Model |

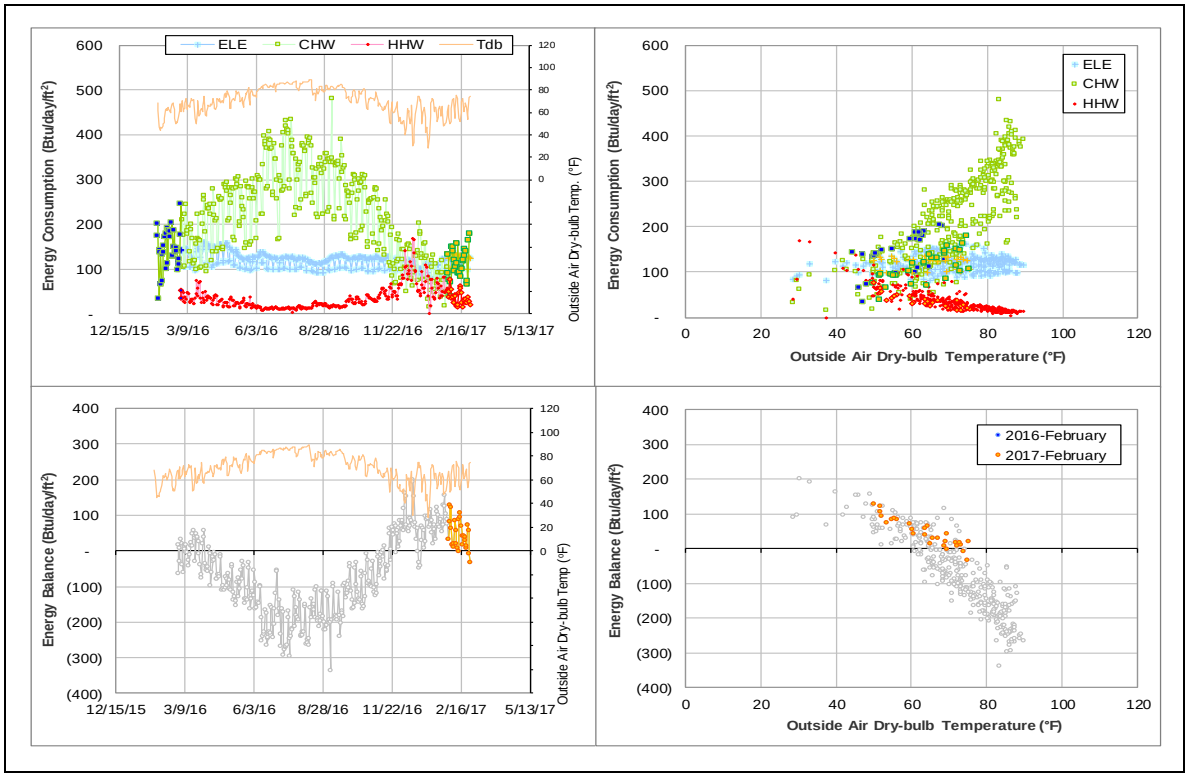
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The consumption level is lower than the level during the past year. | 1/1/2017 – Ongoing |

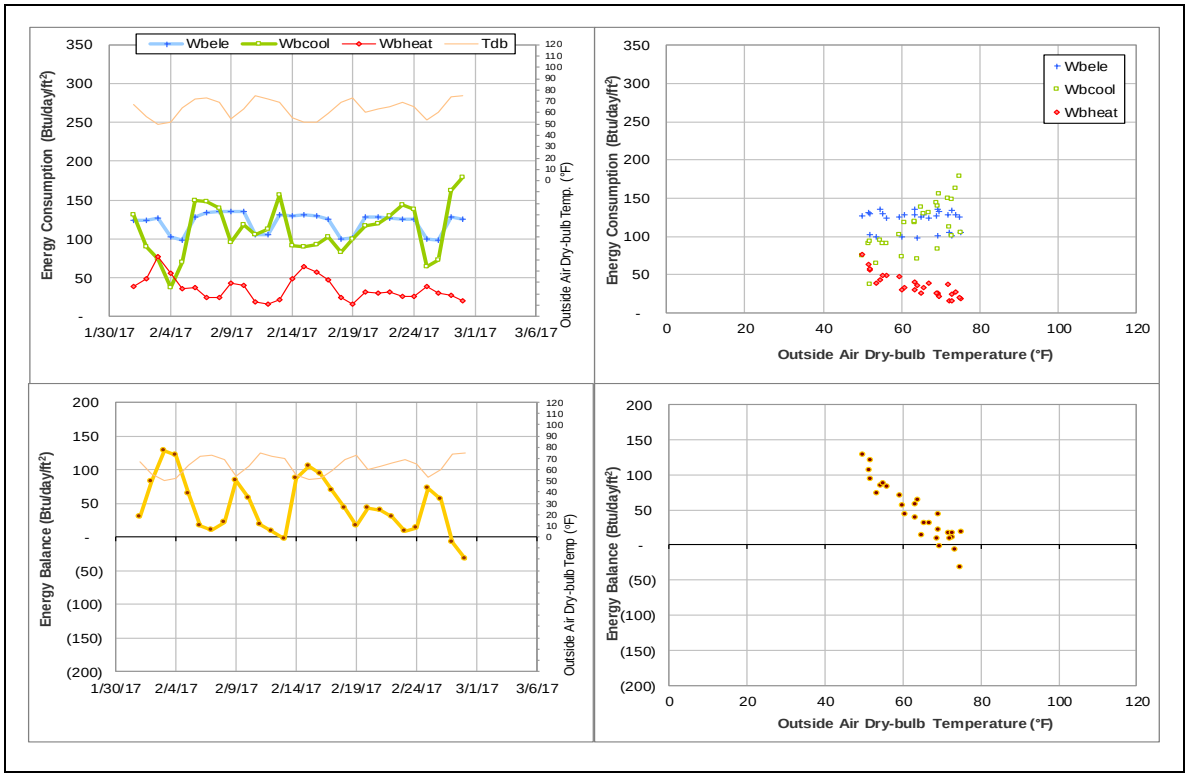
### *Quantitative descriptions and comments*

CHW consumption gradually dropped to a level that is lower than the past year by 50 – 75 Btu/day/ft$^2$. No obvious sensor reading behavior anomaly is observed. The whole month is estimated using a model.

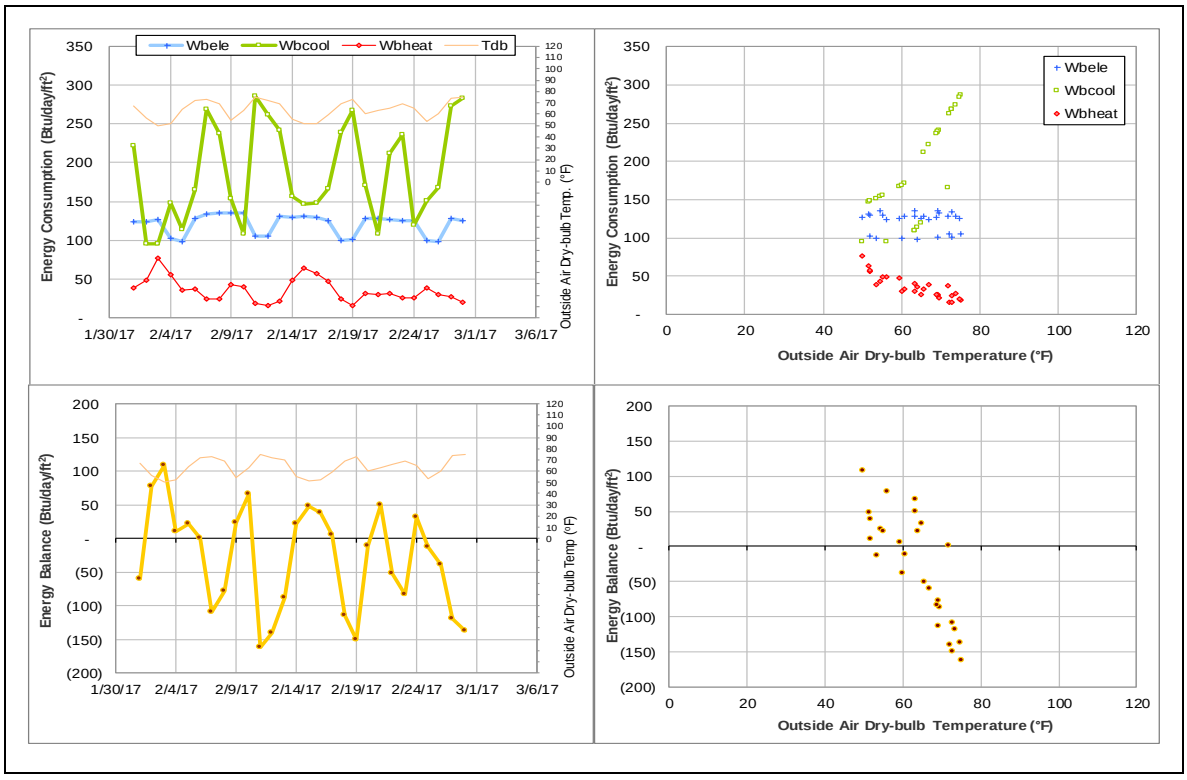
### *Explanatory Figure: 13 months energy balance plot with original data.*



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis.***



# Underwood Residence Hall (TAMU Bldg #394)

***Estimated data***

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 002117 | 16 | 2/5/2017 – 2/14/2017<br>2/20/2017<br>2/24/2017 – 2/28/2017 | Model |
| HHW | 002121 | 16 | 2/5/2017 – 2/14/2017<br>2/20/2017<br>2/24/2017 – 2/28/2017 | Model |

***Detected issues in the energy balance and/or the consumption data***

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The consumption dropped for a short period. | 2/5/2017 – 2/14/2017<br>2/20/2017<br>2/24/2017 – Ongoing |
| HHW | The consumption dropped for a short period. | 2/5/2017 – 2/14/2017<br>2/20/2017<br>2/24/2017 – Ongoing |

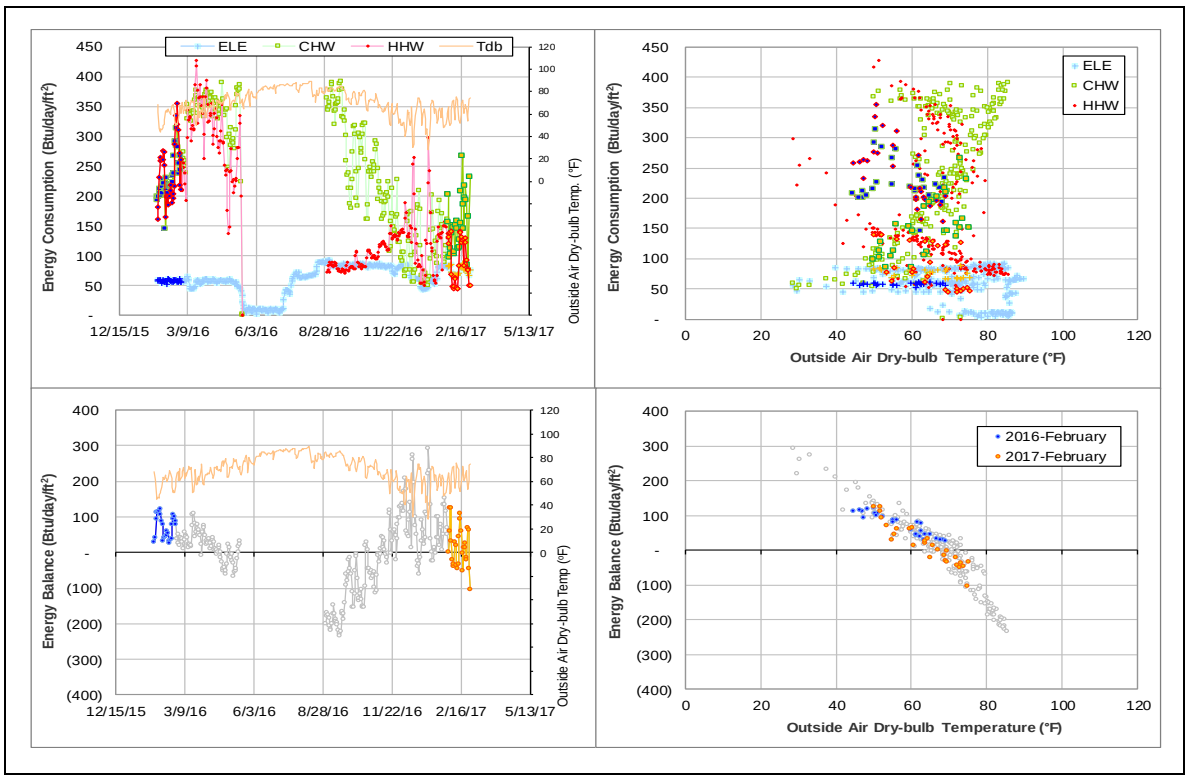
***Changes in sensor readings related to the detected issues***

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| CHW | 002117 | 2/5/2017 – 2/14/2017<br>2/20/2017<br>2/24/2017 – Ongoing | Flow rate | Low |
| HHW | 002121 | 2/5/2017 – 2/14/2017<br>2/20/2017<br>2/24/2017 – Ongoing | Flow rate | Low |

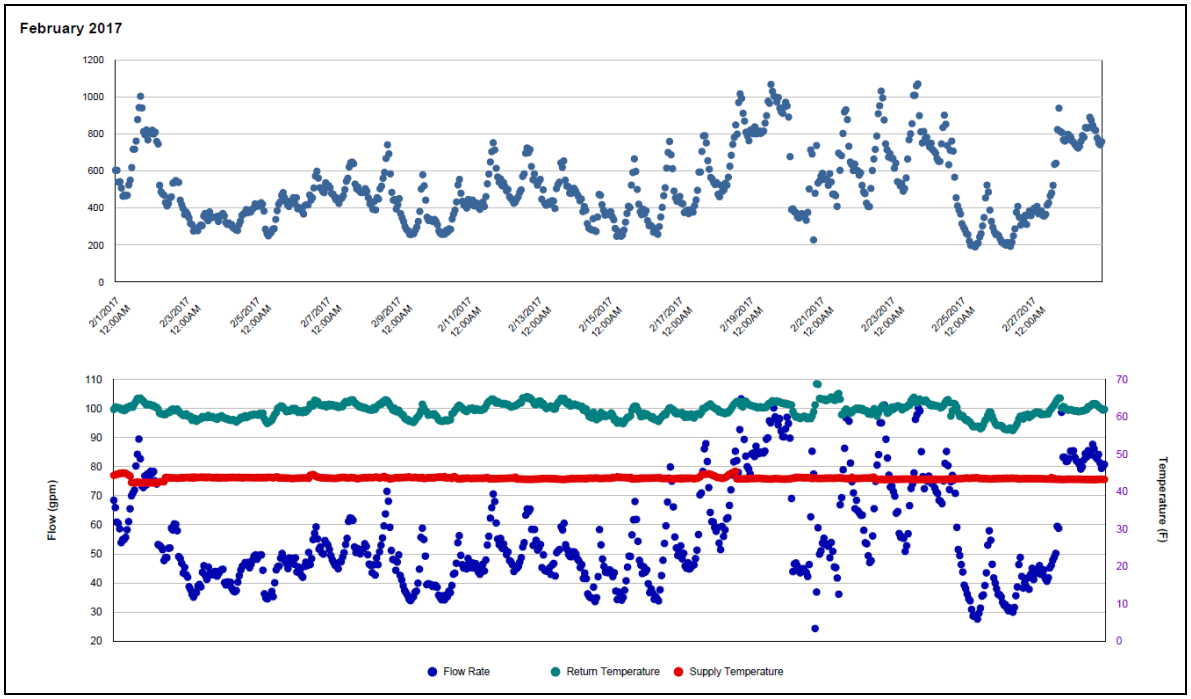
***Quantitative descriptions and comments***

Both CHW and HHW had significantly lower flow rate for several days in the month. HHW flow dropped from 20 – 24 gpm to 8 – 12 gpm. CHW flow dropped in response to HHW change. The days with low flow rate are estimated using a model.

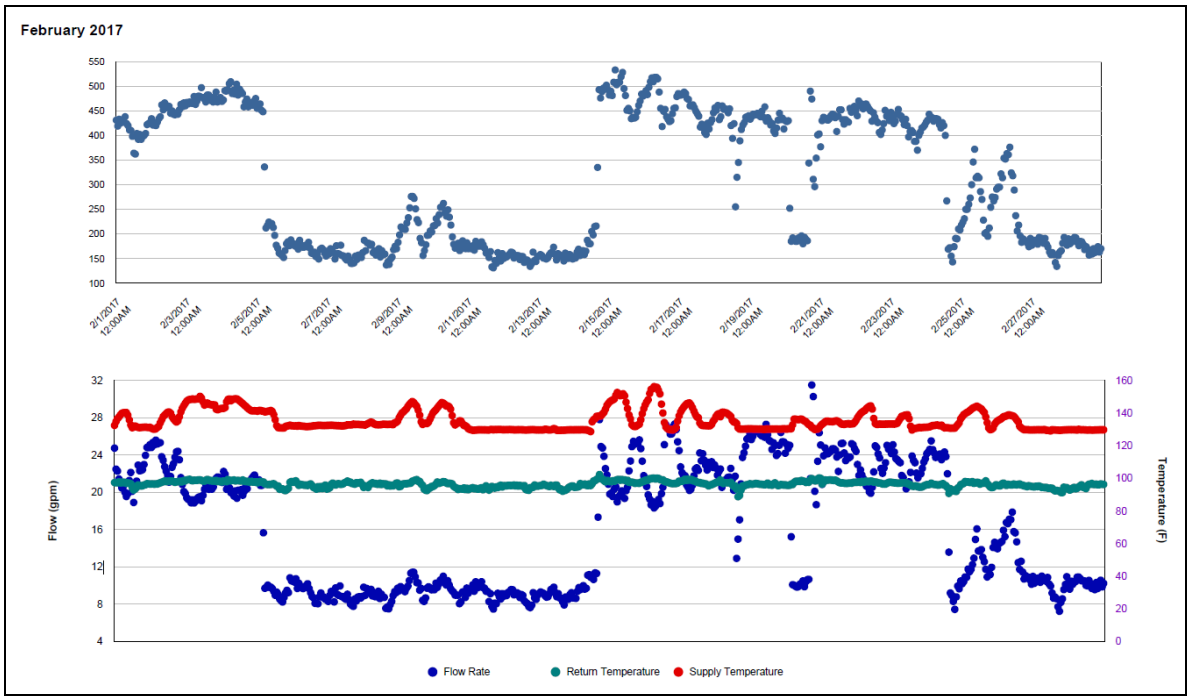
***Explanatory Figure: 13 months energy balance plot with original data.***



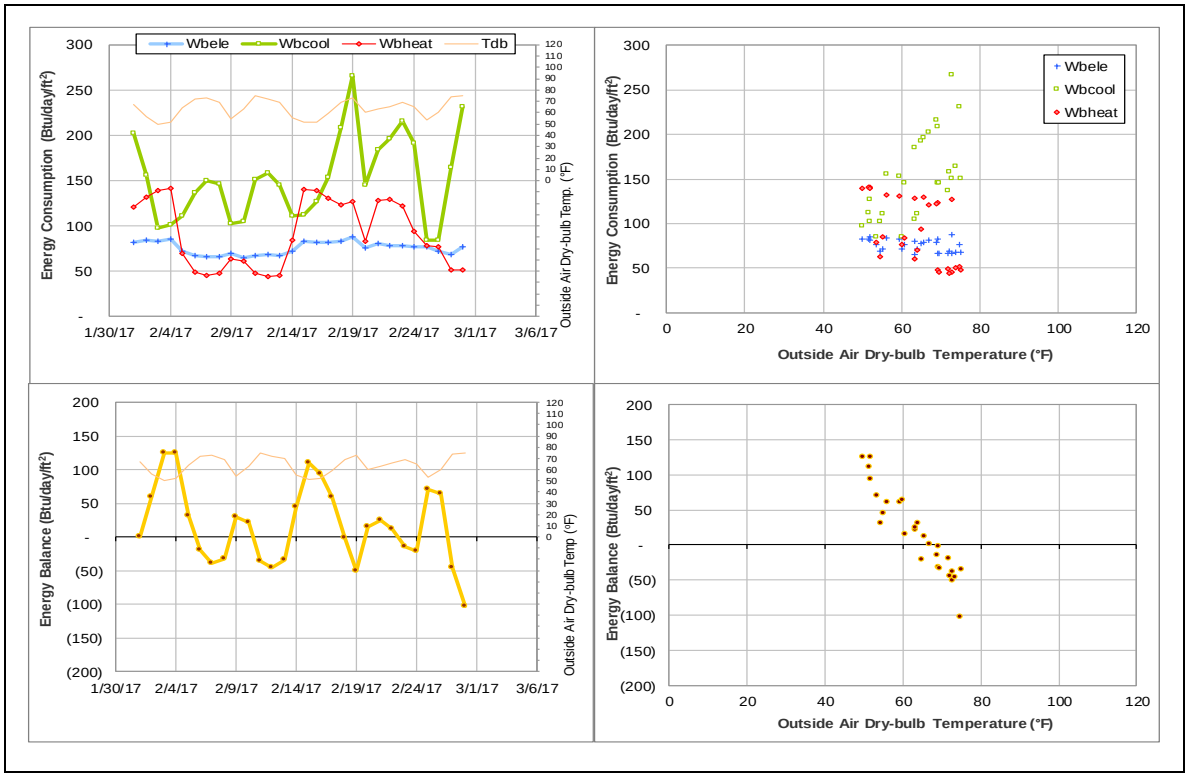
***Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during February 2017)***



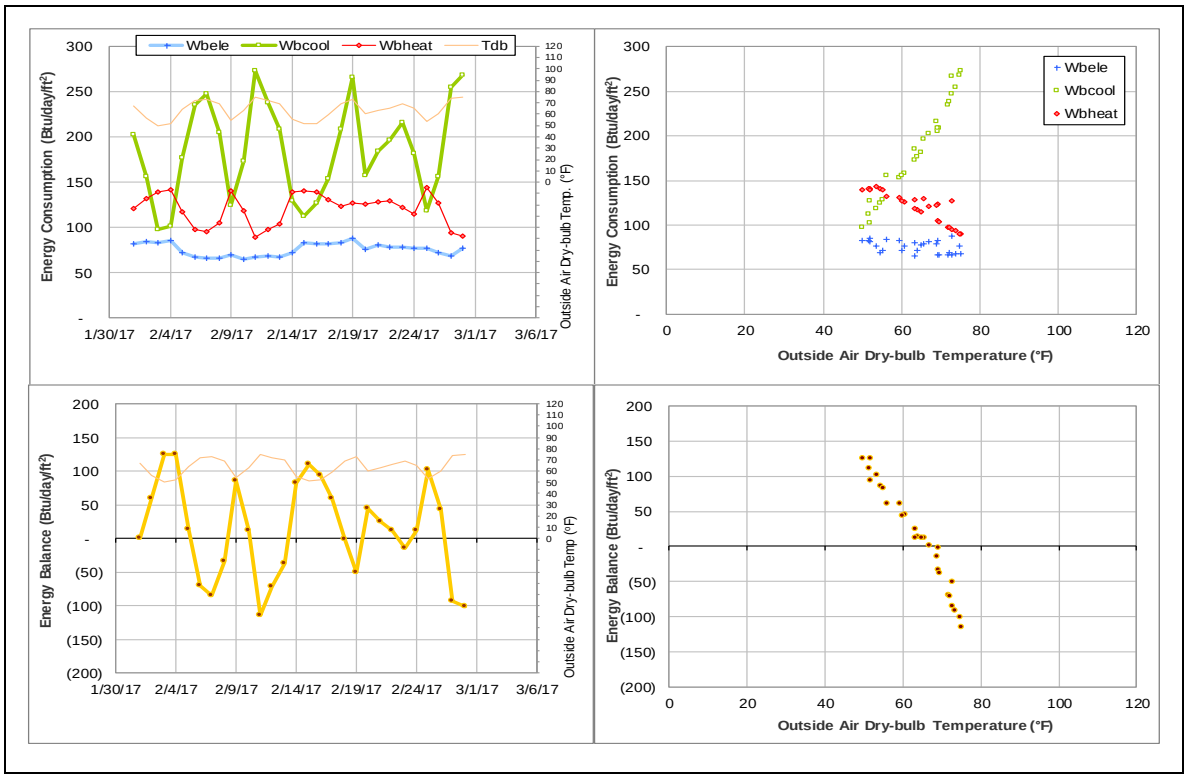

***Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during February 2017)***



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis.***



# Henderson Hall (TAMU Bldg #425)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 002607 | 7 | 2/4/2017 – 2/5/2017<br>2/23/2017<br>2/25/2017 – 2/28/2017 | Model |
| HHW | 002611 | 7 | 2/4/2017 – 2/5/2017<br>2/23/2017<br>2/25/2017 – 2/28/2017 | Model |

### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The consumption dropped for a short period. | 2/4/2017 – 2/5/2017<br>2/23/2017<br>2/25/2017 – 2/28/2017 |
| HHW | The consumption dropped for a short period. | 2/4/2017 – 2/5/2017<br>2/23/2017<br>2/25/2017 – 2/28/2017 |

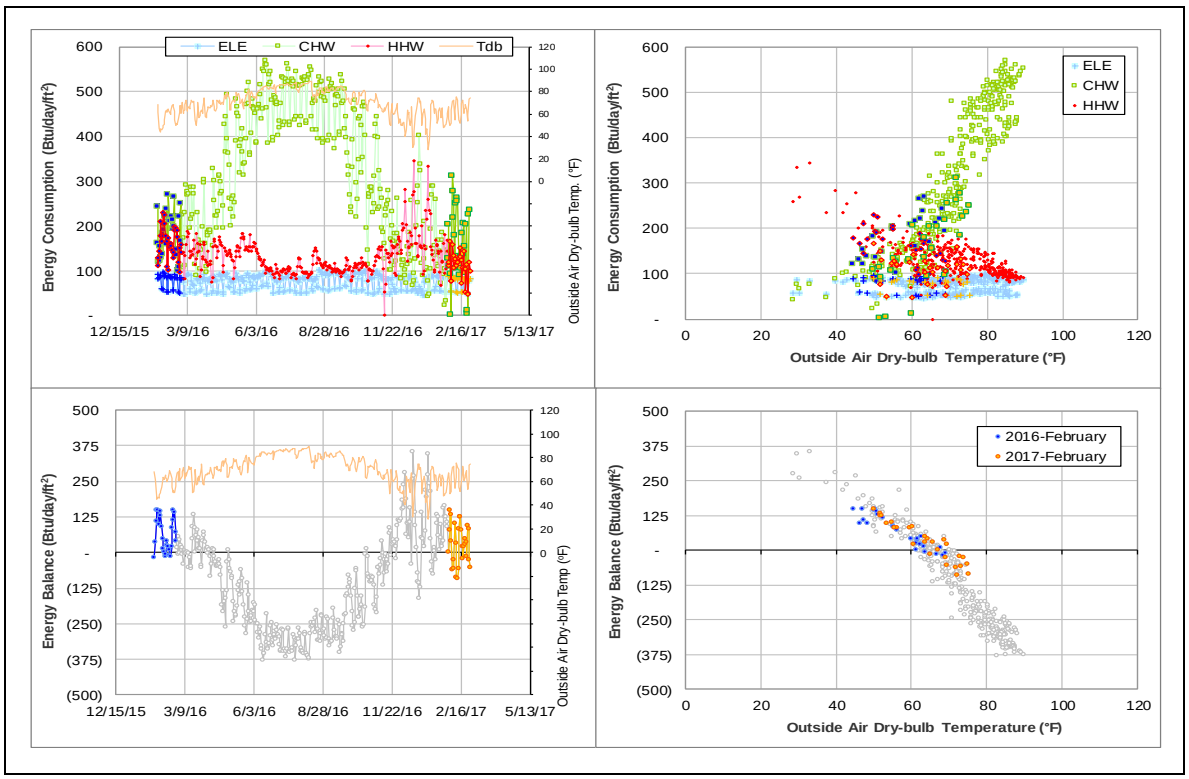
### *Changes in sensor readings related to the detected issues*

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| CHW | 002607 | 2/4/2017 – 2/5/2017<br>2/23/2017<br>2/25/2017 – 2/28/2017 | Flow rate | Zero |
| HHW | 002611 | 2/4/2017 – 2/5/2017<br>2/23/2017<br>2/25/2017 – 2/28/2017 | Flow rate | High |
| | | | Delta-T | Low |

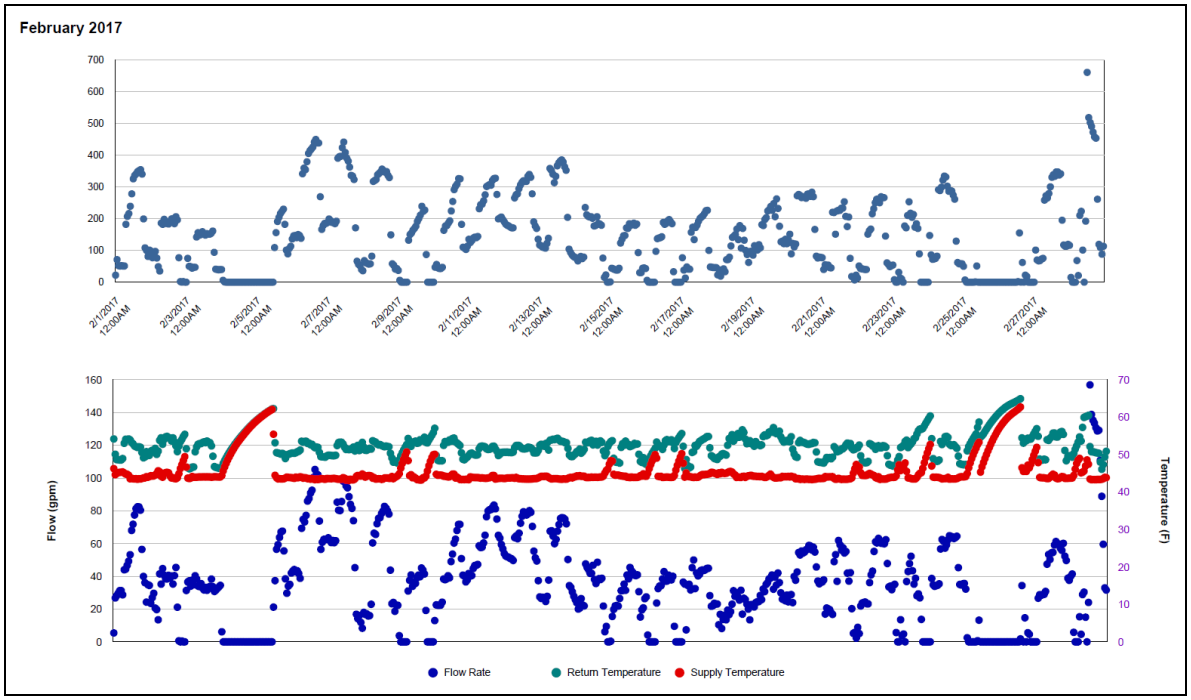
### *Quantitative descriptions and comments*

CHW flow had zero values occasionally in the month. The temperature readings were approaching room temperature during hours of zero CHW flow, thus the readings are not suspected to be conspicuously faulty. HHW was also affected when CHW was abnormal. HHW had high flow but very low Delta-T on the same days and the consumption was lower on these days. The days with zero CHW flow rate are estimated using a model.

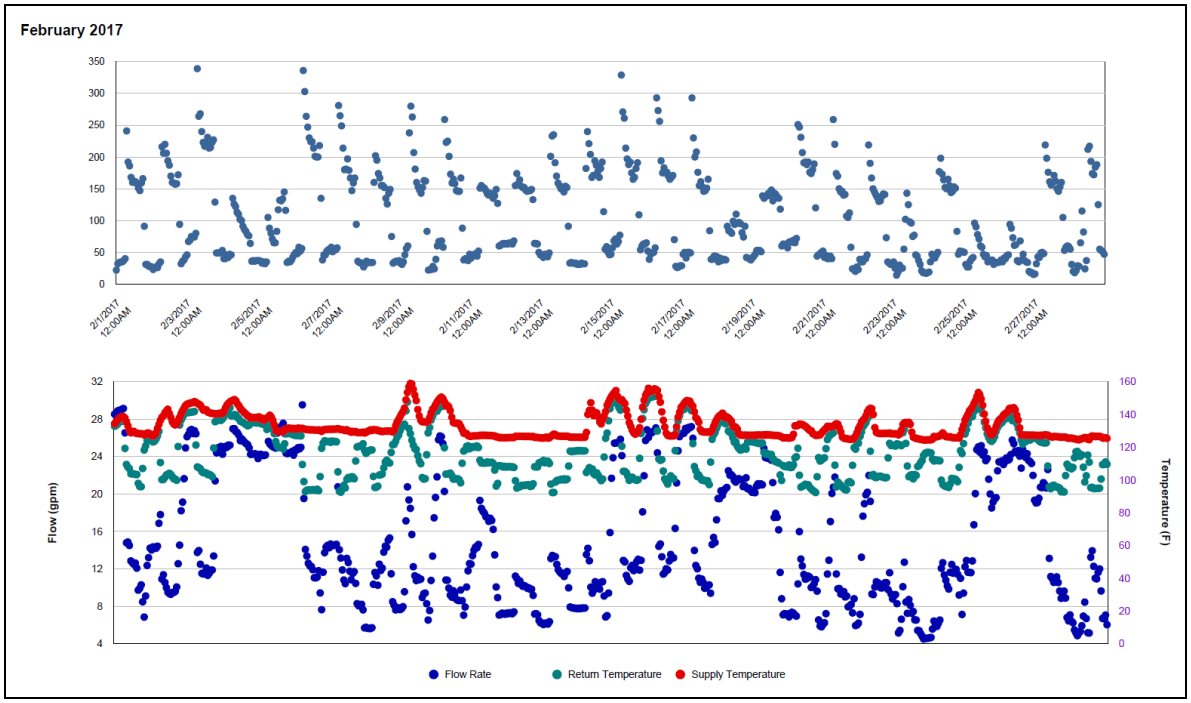
***Explanatory Figure: 13 months energy balance plot with original data.***



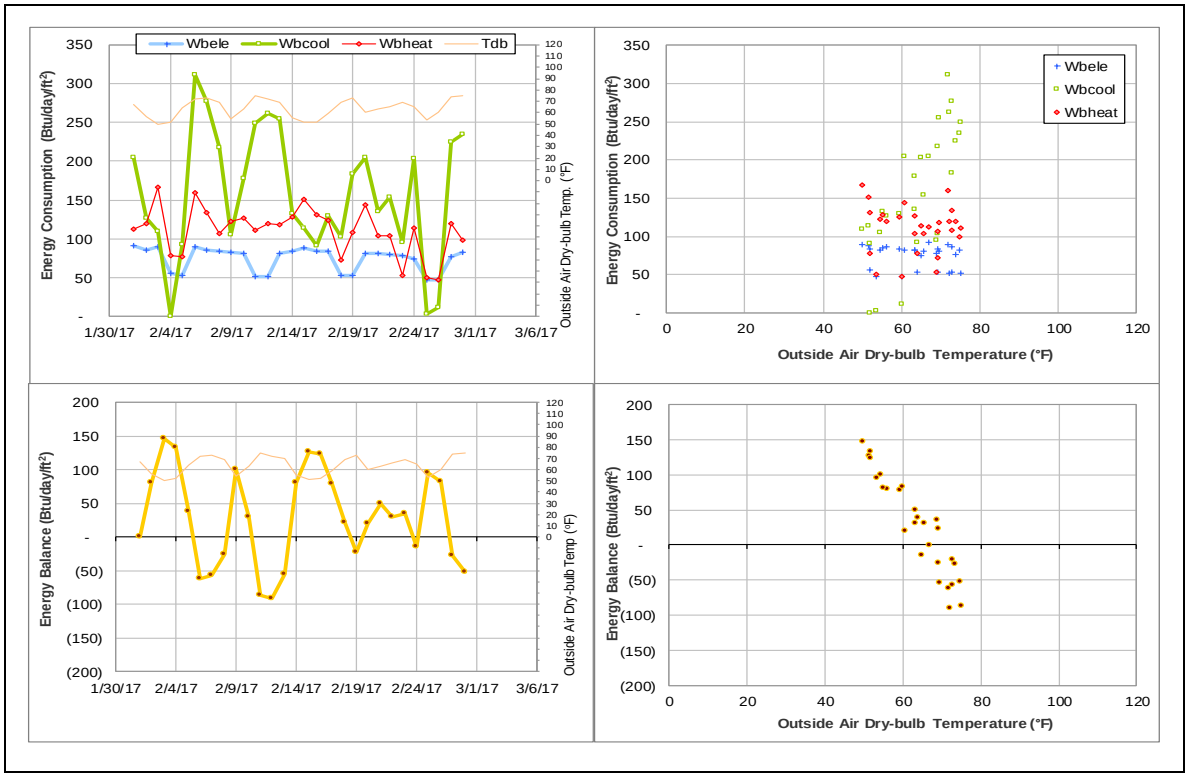
***Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during February 2017)***



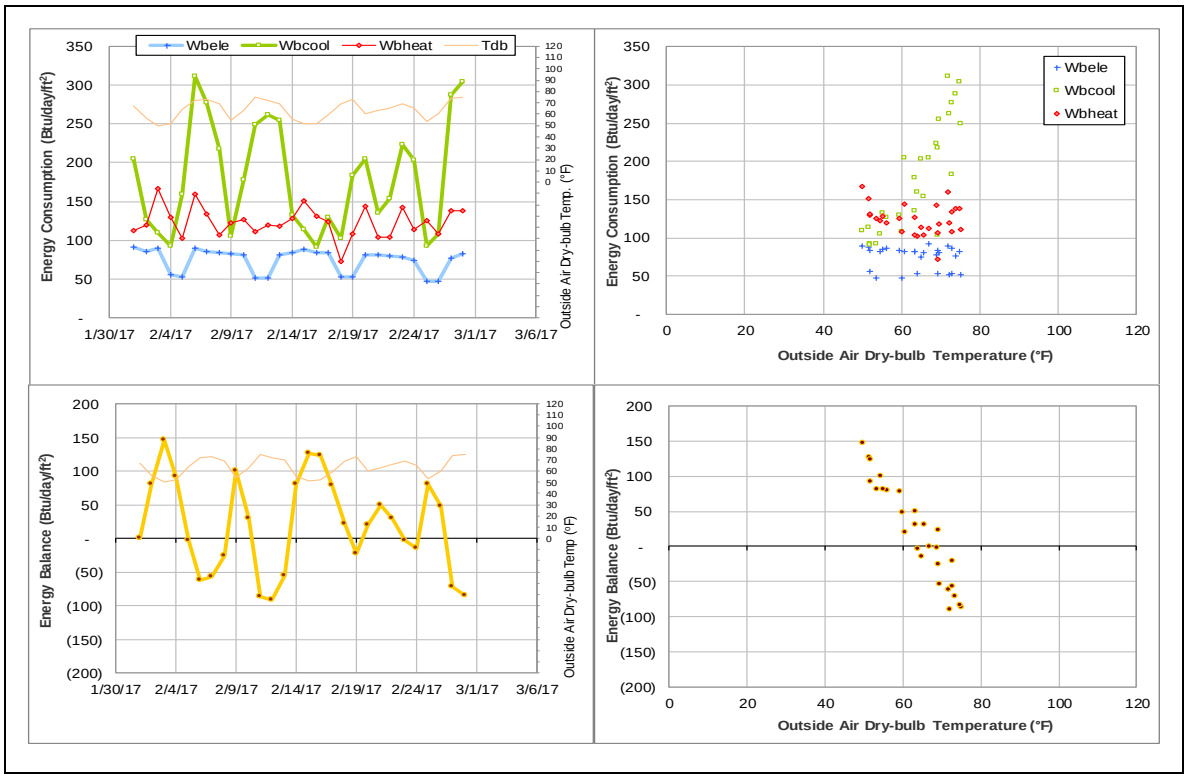

***Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during February 2017)***



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis.***



# Aston Residence Hall (TAMU Bldg #447)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 002474 | 28 | 2/1/2017 – 2/28/2017 | Model |

### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The metered values appear to be faulty. | 11/18/2016 – Ongoing |

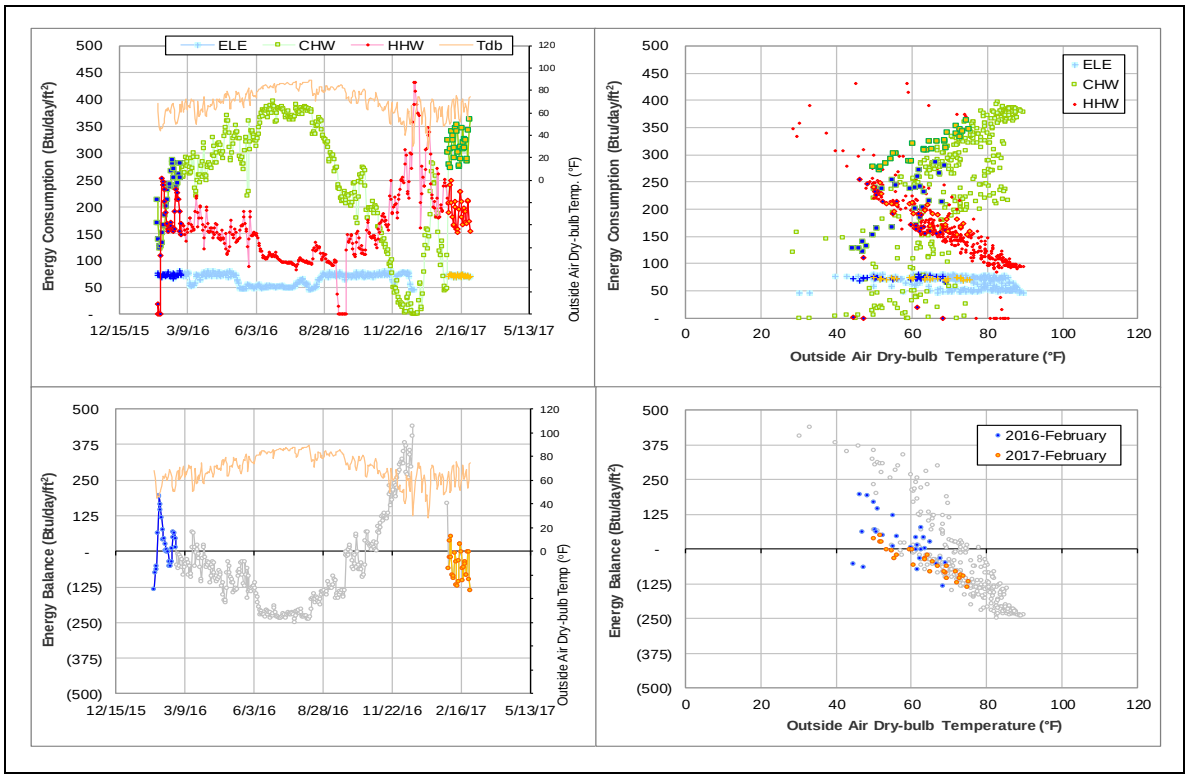
### *Changes in sensor readings related to the detected issues*

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| CHW | 002474 | 11/18/2016 – 1/31/2017 | Delta-T | Low and occasionally negative |
| | | 2/1/2017 – Ongoing | Delta-T | High |

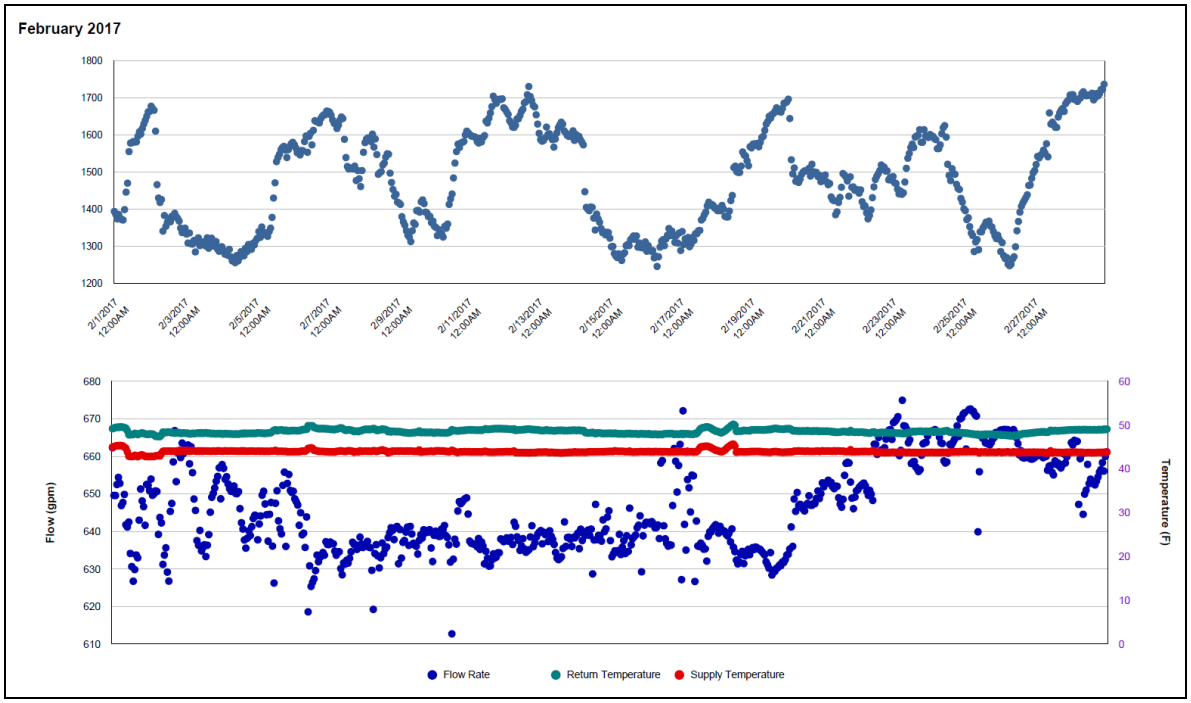
### *Quantitative descriptions and comments*

Delta-T of CHW decreased significantly and consumption dropped to a very low level since 11/18/2016, and negative values of Delta-T appeared occasionally. Delta-T significantly increased on 1/31/2017 and the consumption went higher than the previous years. The readings may still be faulty but higher than normal instead of being negative. The whole month is estimated by a model.

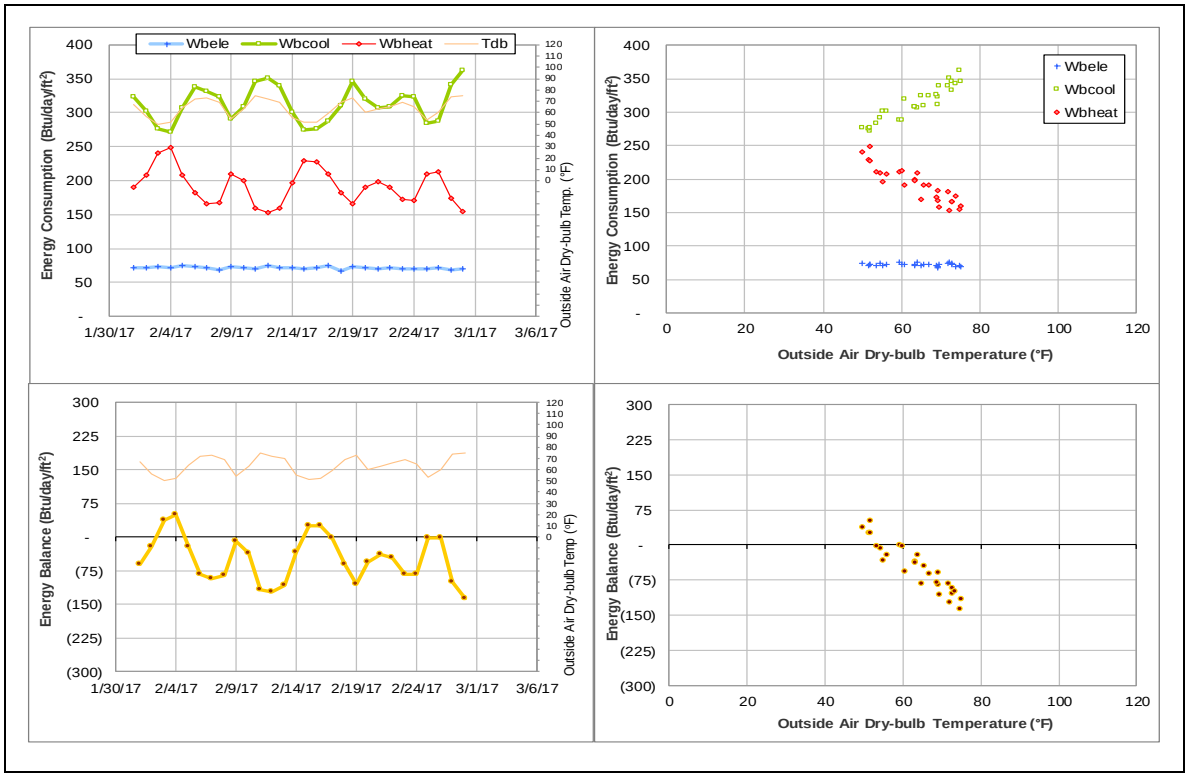
### *Explanatory Figure: 13 months energy balance plot with original data.*



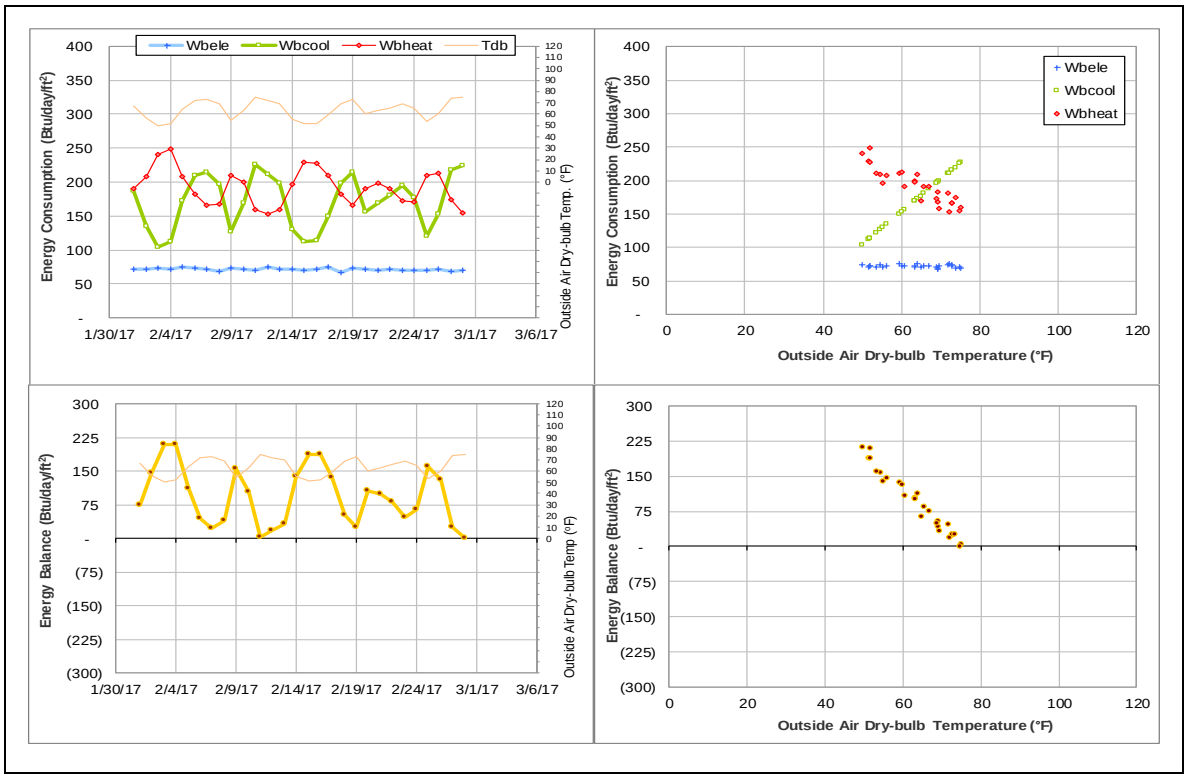
***Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during February 2017)***



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis.***



# Oceanography & Meteorology Building (TAMU Bldg #443)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 006388 | 28 | 2/1/2017 – 2/28/2017 | Model |

### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The consumption level is higher than the level during the past year.<br>The metered values appear to be faulty. | 10/1/2016 – Ongoing |

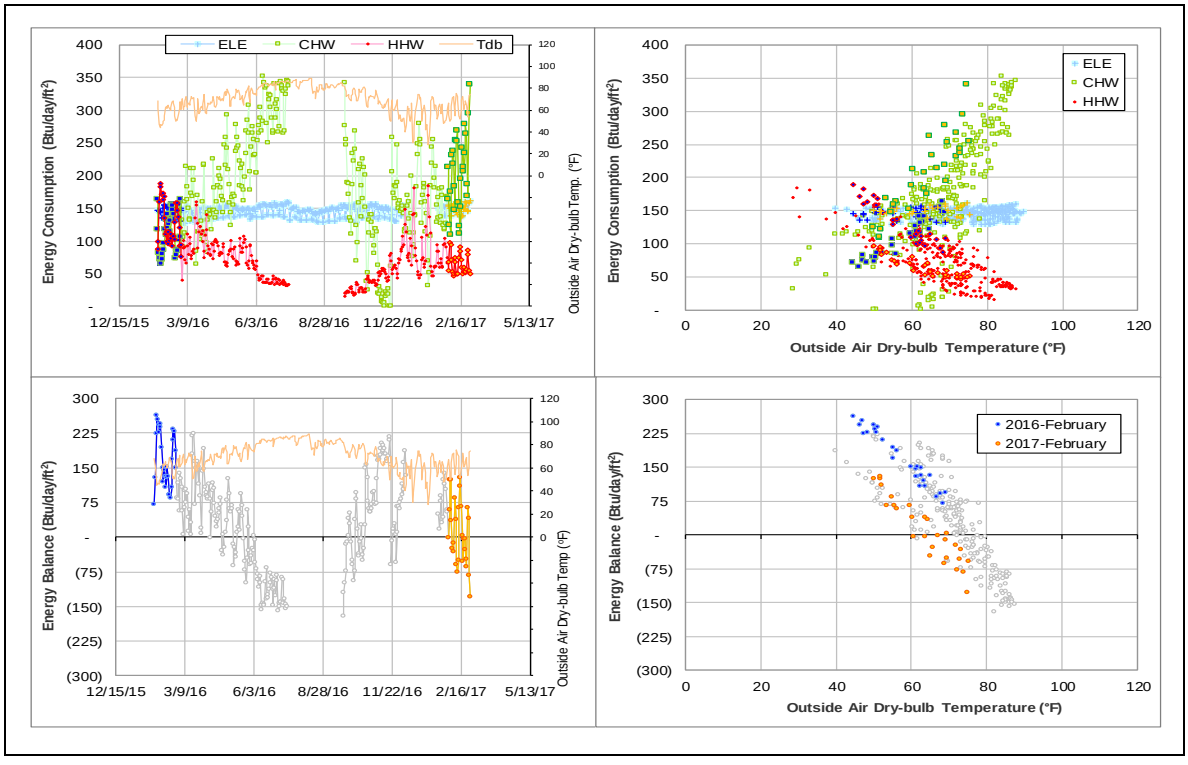
### *Changes in sensor readings related to the detected issues*

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| CHW | 006388 | 10/21/2016 – 10/25/2016<br>11/5/2016 – 11/22/2016 | Delta-T | Contains negative |
| | | 11/23/2016 – Ongoing | Delta-T | High |

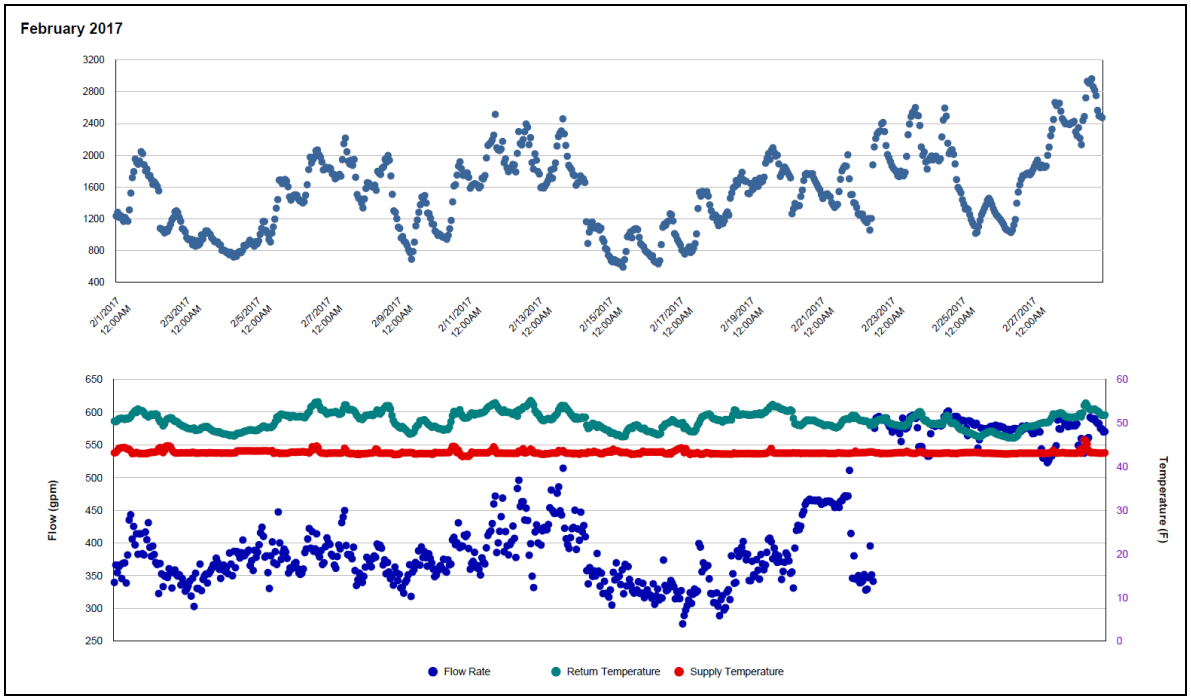
### *Quantitative descriptions and comments*

CHW temperature readings contain negative values during 10/21 – 10/25/2016 and 11/5 – 11/22/2016. Starting 11/22/2016, Delta-T became positive but the consumption and energy balance are still off-pattern, and the consumption is appreciably higher than the past 5 years. The cross-point of EB has changed from 75°F to 65°F because of this increase. The whole month is estimated by a model. See also section II-3.

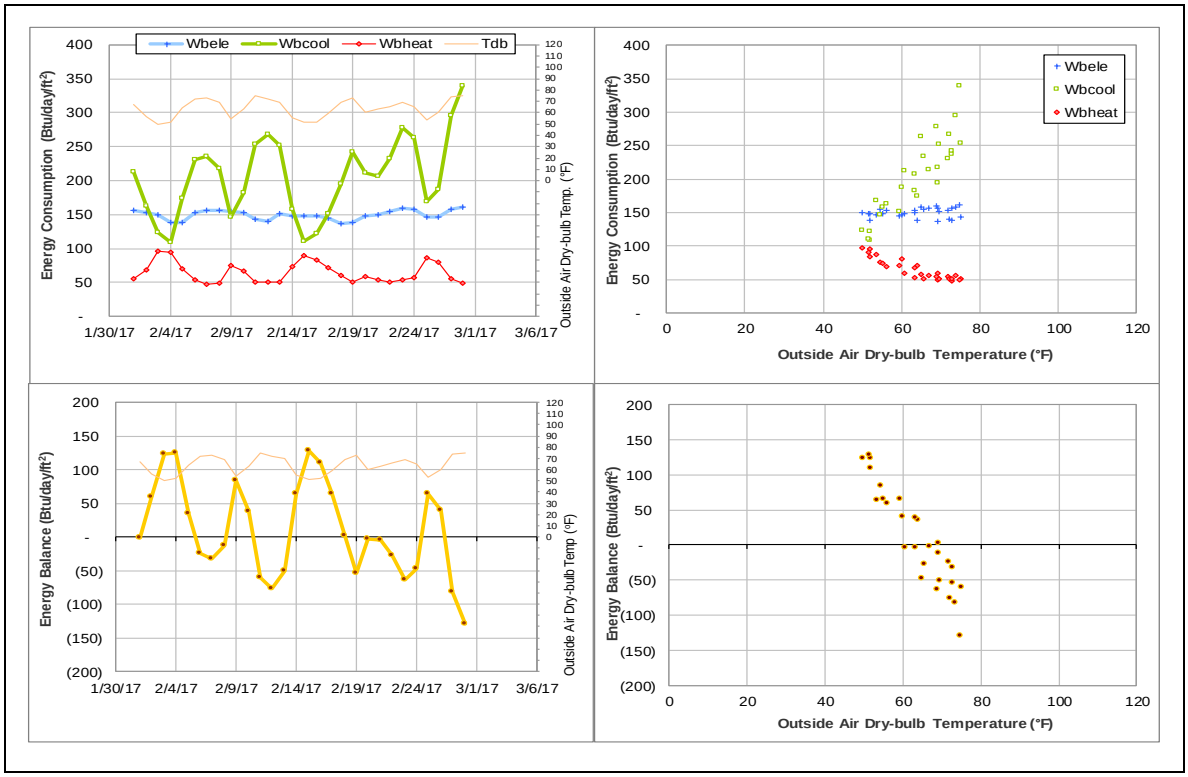
### *Explanatory Figure: 13 months energy balance plot with original data.*



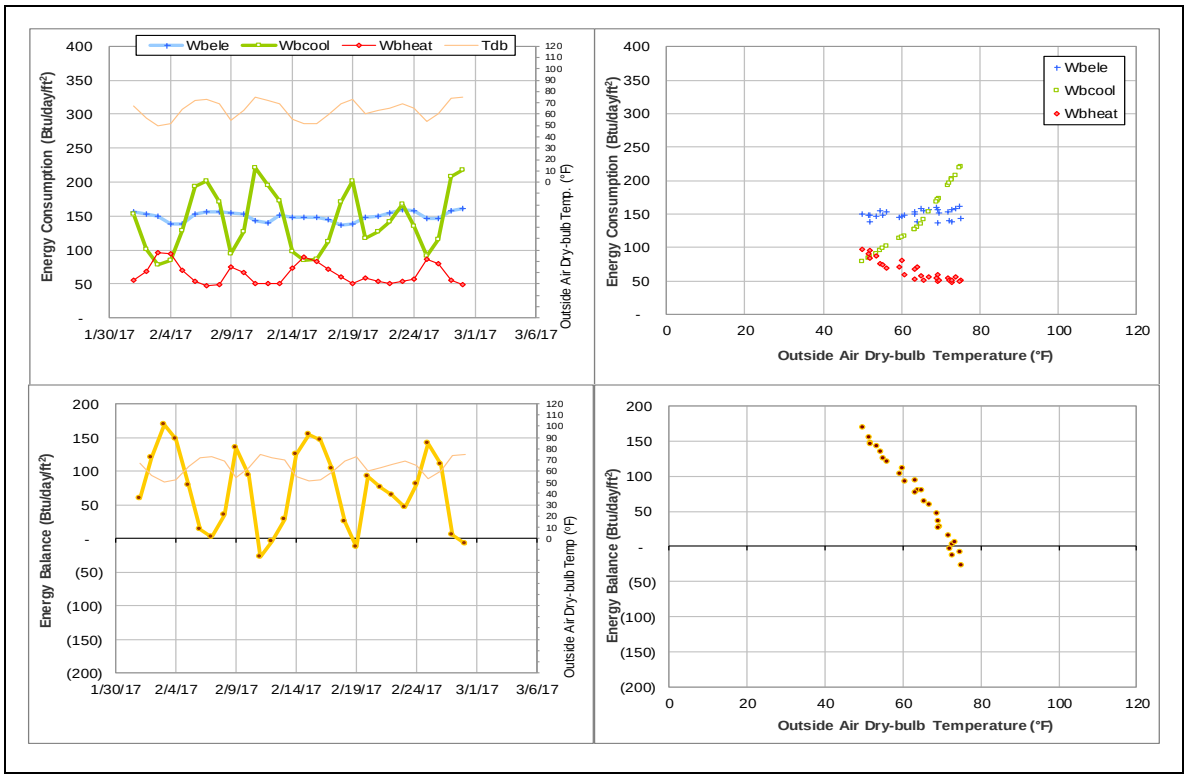
***Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during February 2017)***



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis.***



# Teague Research Center (TAMU Bldg #445)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 006411 | 28 | 2/1/2017 – 2/28/2017 | Model |
| HHW | 006415 | 28 | 2/1/2017 – 2/28/2017 | Model |

### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The consumption level is higher than the level during the past year. | 12/21/2016 – Ongoing |
| HHW | The consumption level is higher than the level during the past year.<br>The consumption level has increased suddenly. | 12/8/2016 – Ongoing |

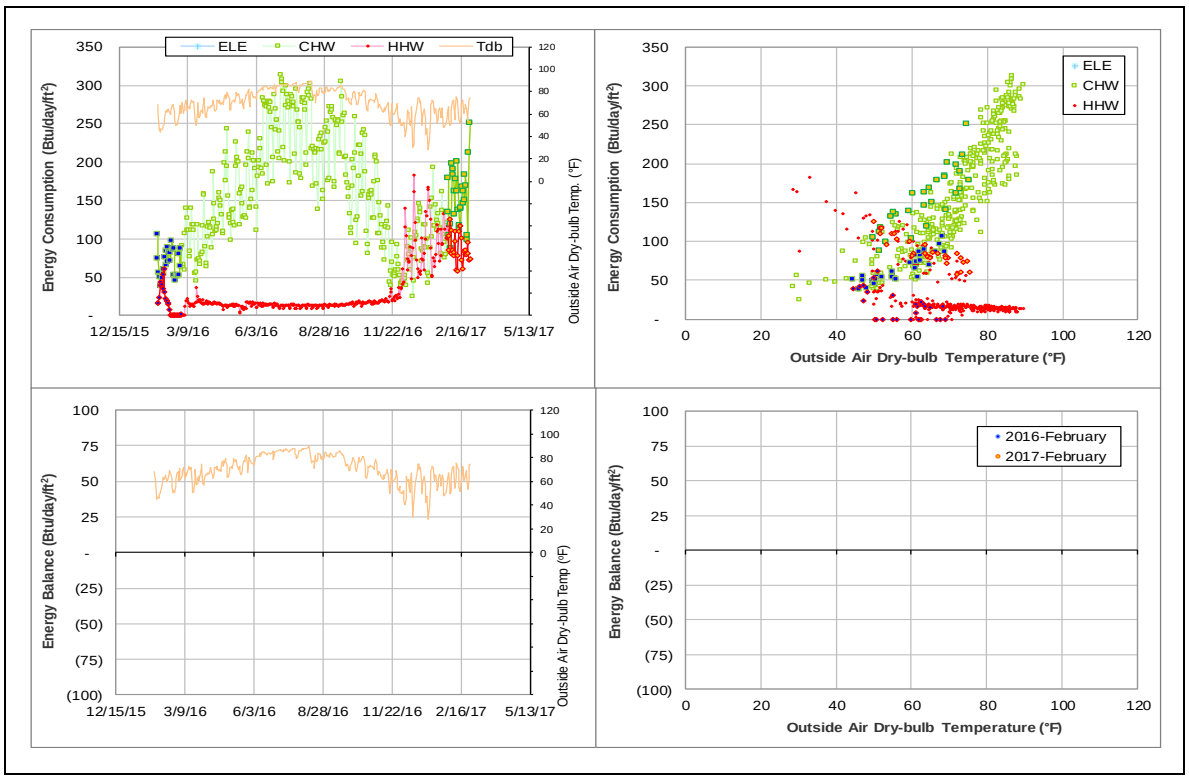
### *Changes in sensor readings related to the detected issues*

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| CHW | 006411 | 12/21/2016 – Ongoing | Delta-T and Flow Rate | High |
| HHW | 006415 | 12/8/2016 – Ongoing | Delta-T and Flow Rate | High |

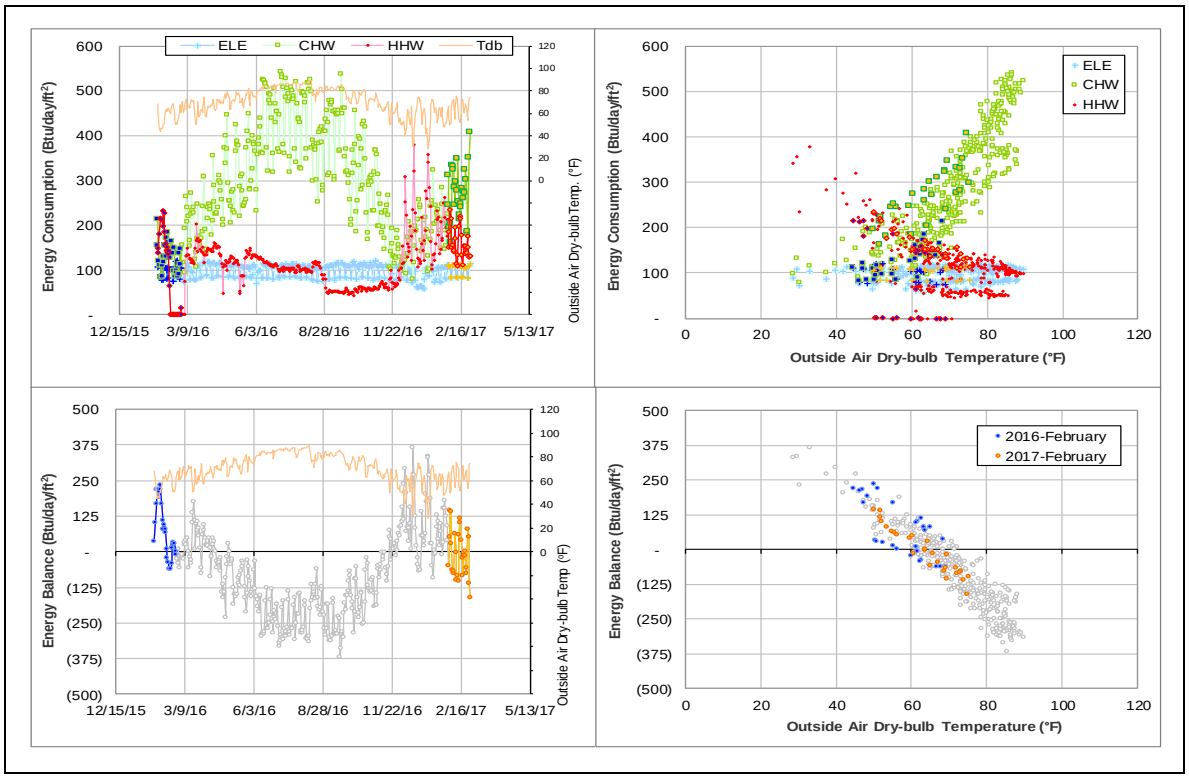
### *Quantitative descriptions and comments*

CHW had an increase in flow rate from around 15 gpm to 80 gpm level in the end of December 2016. An increase of Delta-T followed on 1/4/2017 and pulled CHW consumption up gradually to a level higher than the previous year. Delta-T kept unstable throughout the month. HHW had an increase in both flow rate (from 15 gpm to 30 gpm in December 2016) and Delta-T causing an increase of consumption and brought scatter to the data. These days are estimated by a model. See also section II-3.

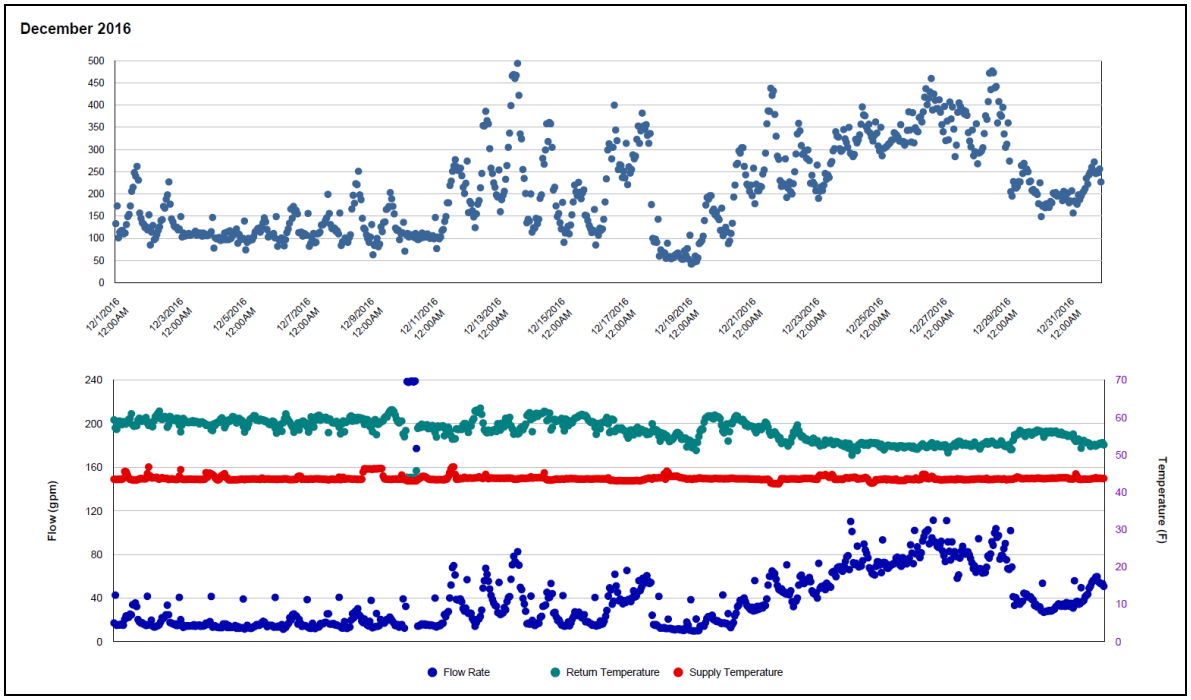
***Explanatory Figure: 13 months energy balance plot with original data for #445 only***



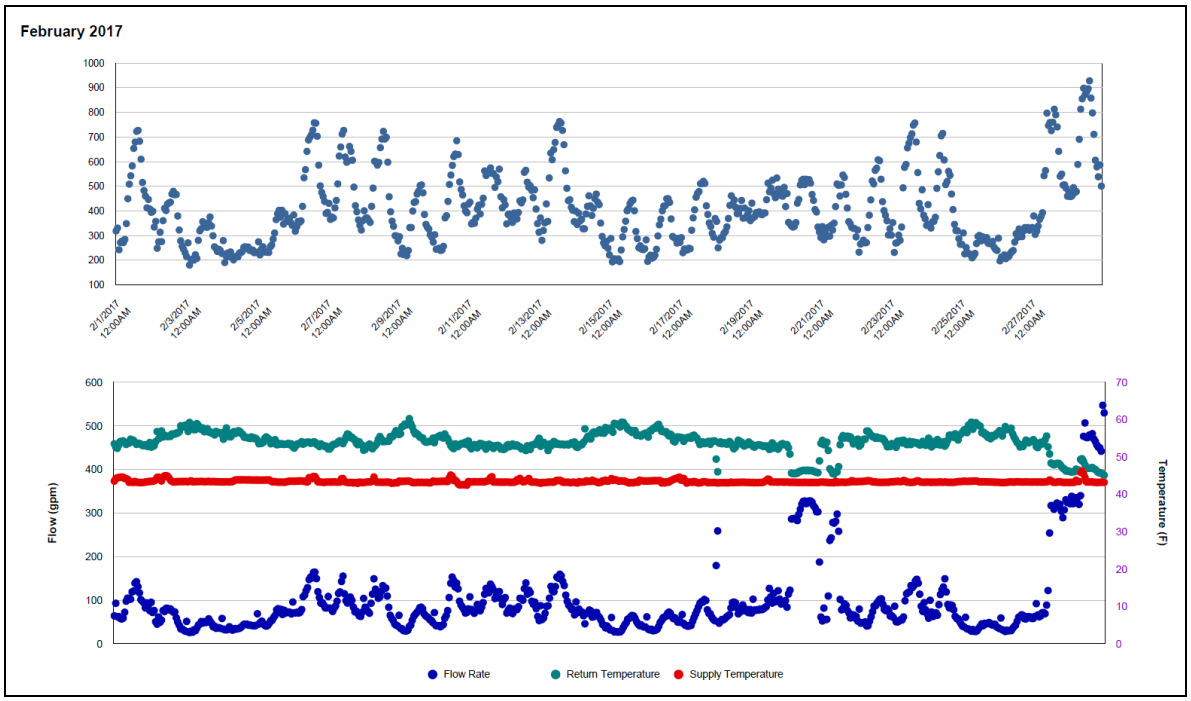

***Explanatory Figure: 13 months energy balance plot with original data for total of #445 and #517***



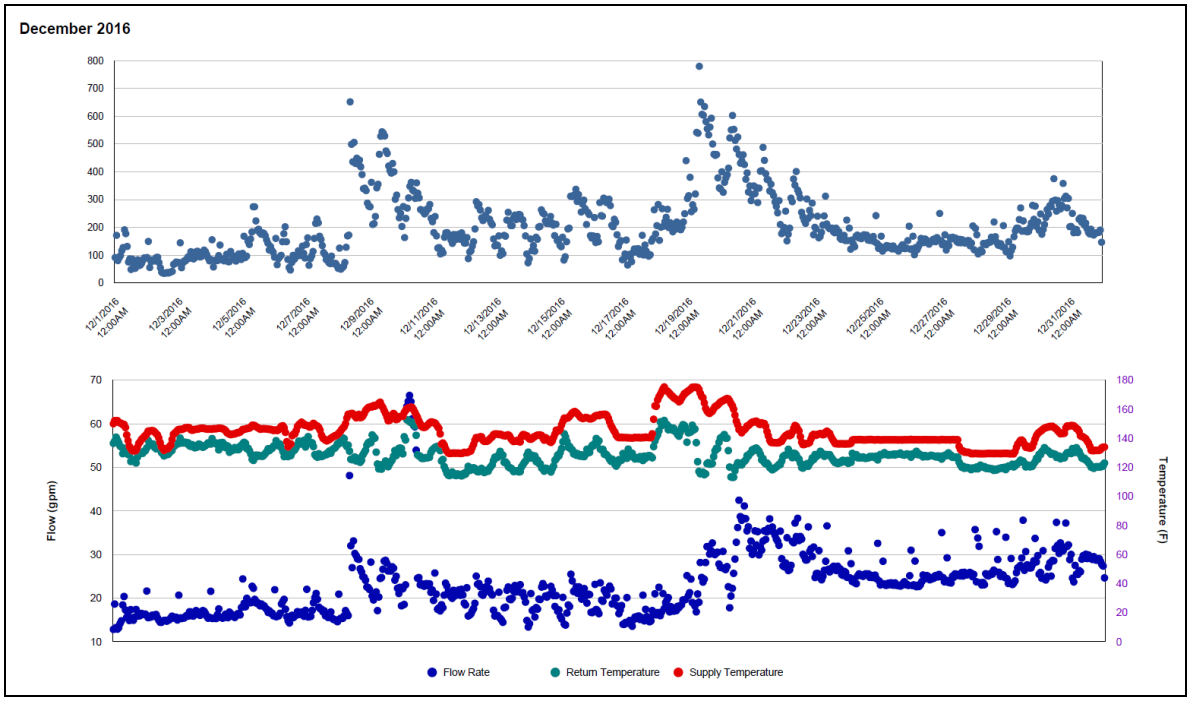
***Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during December 2016)***



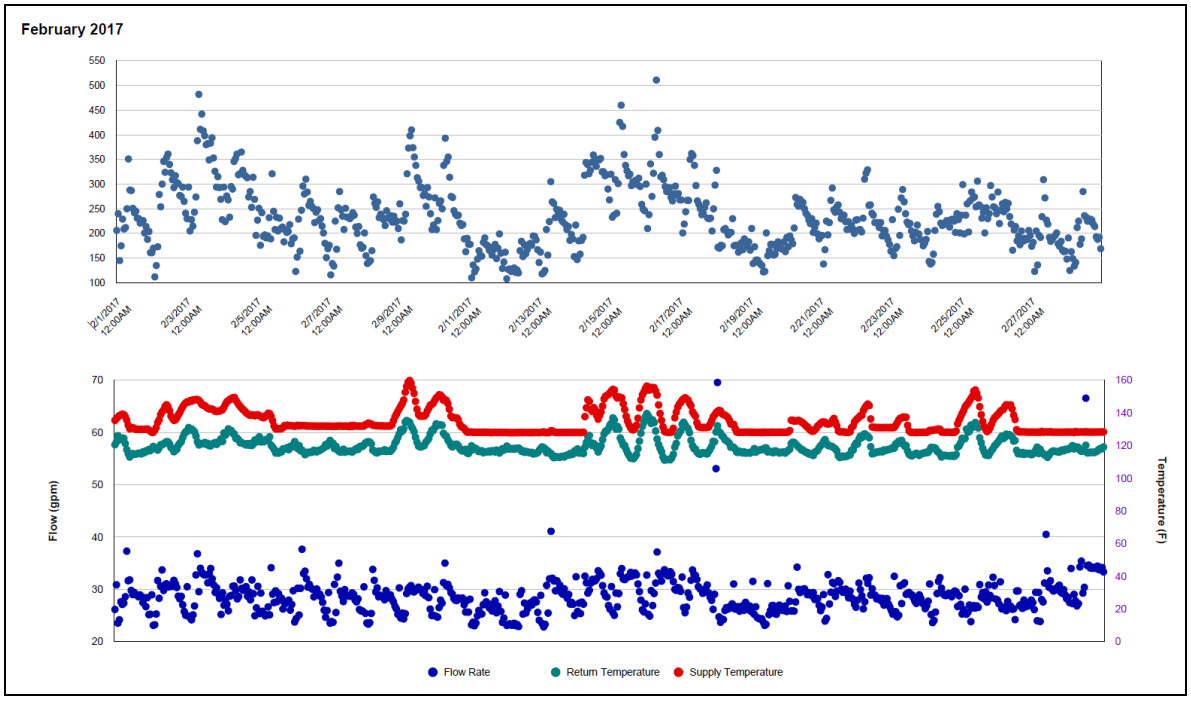

***Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during February 2017)***



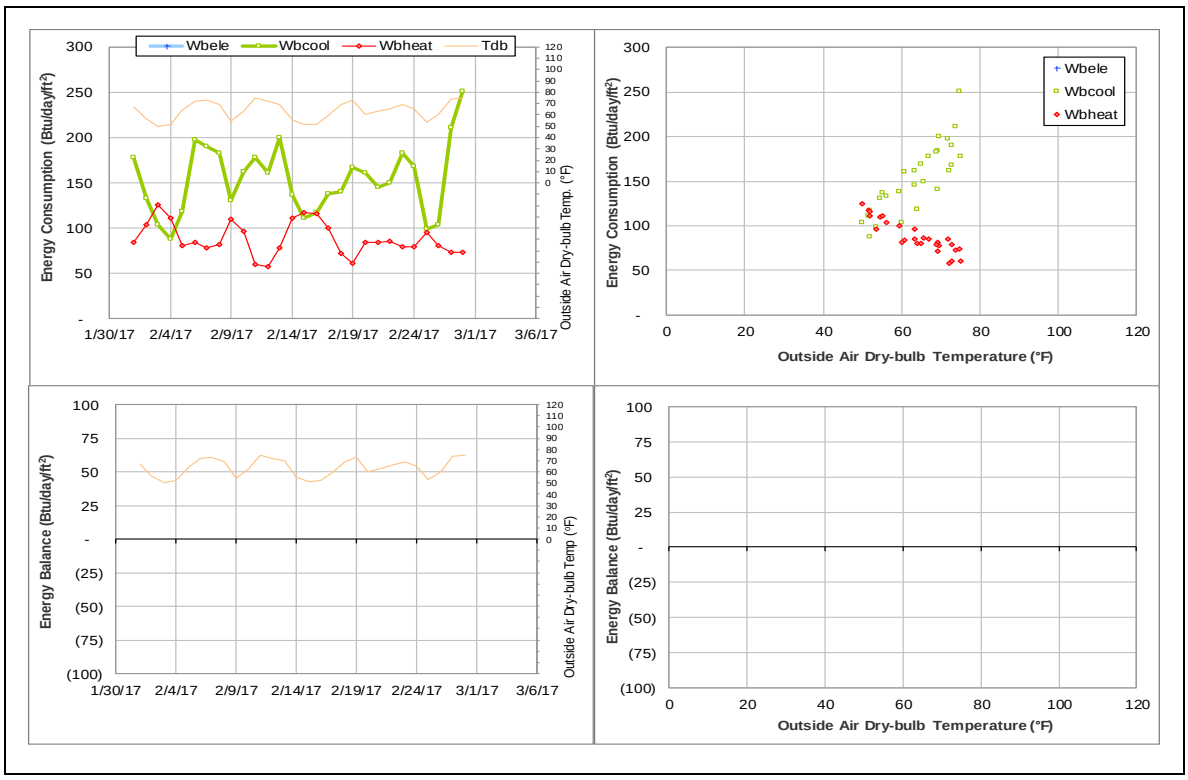
***Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during December 2016)***



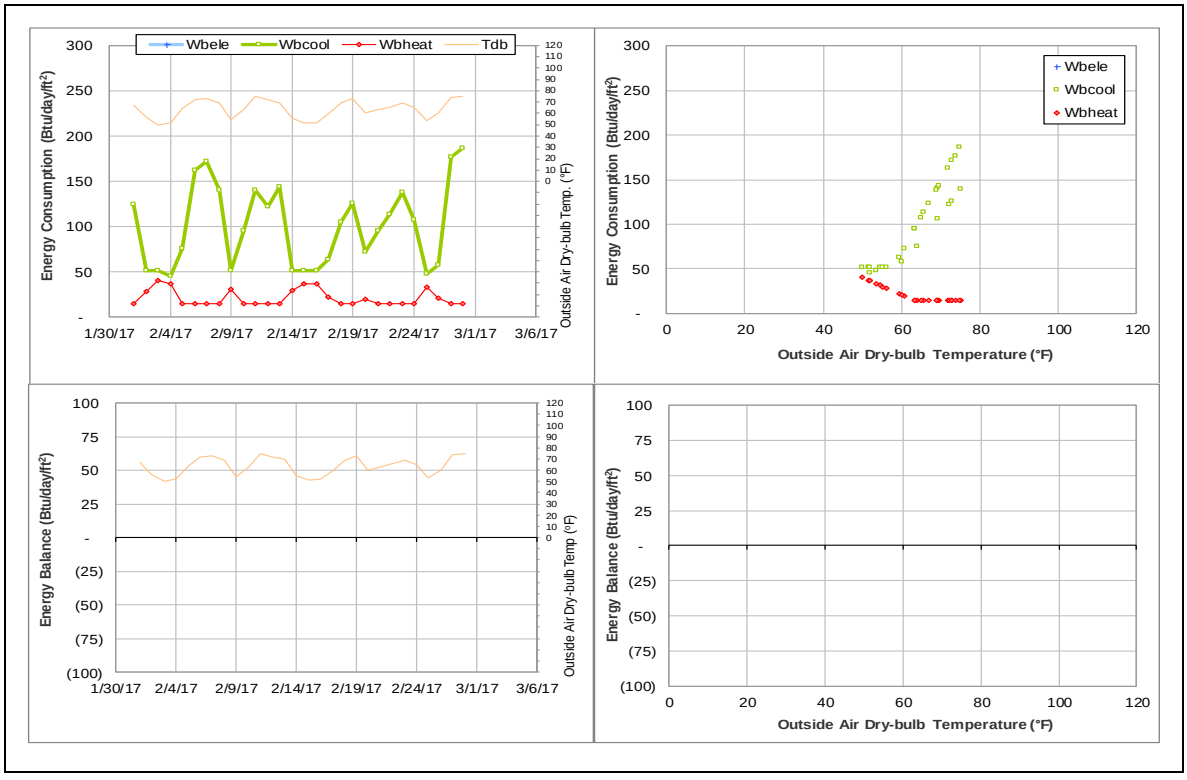

***Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during February 2017)***



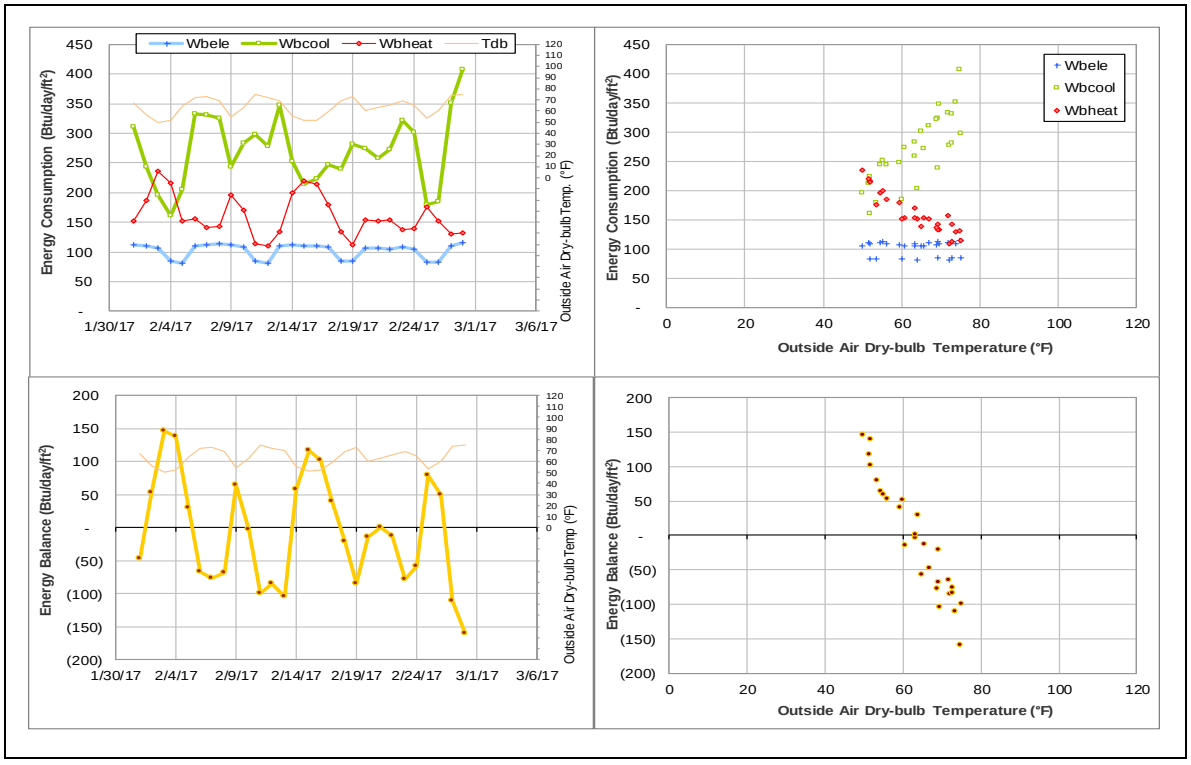
***Energy balance plot using the original data for the month of analysis for #445 only***



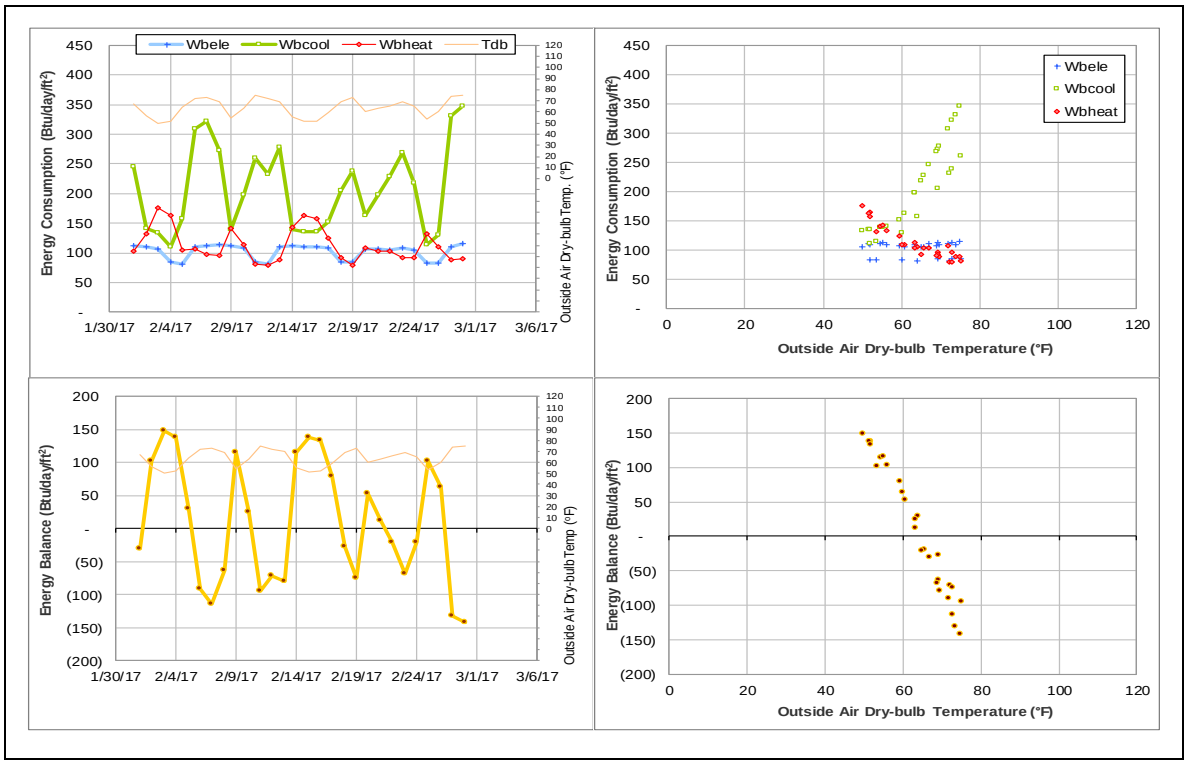

***Energy balance plot using the estimated data for the month of analysis for #445 only***



***Energy balance plot using the original data for the month of analysis for total of #445 and #517***




***Energy balance plot using the estimated data for the month of analysis for total of #445 and #517***



# DPC Annex (TAMU Bldg #517)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 006563 | 28 | 2/1/2017 – 2/28/2017 | Model |

### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The consumption level is higher than the level during the past year. | 1/1/2017 – Ongoing |

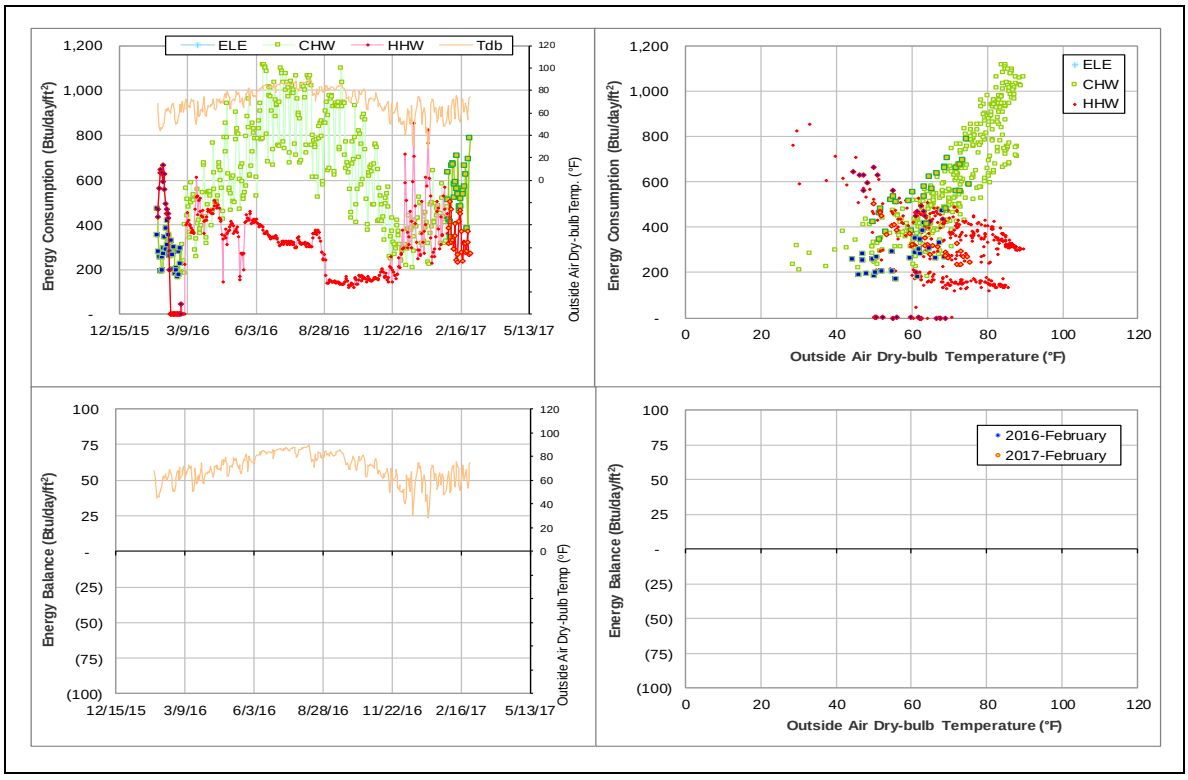
### *Changes in sensor readings related to the detected issues*

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| CHW | 006563 | 1/1/2017 – Ongoing | Delta-T | High |

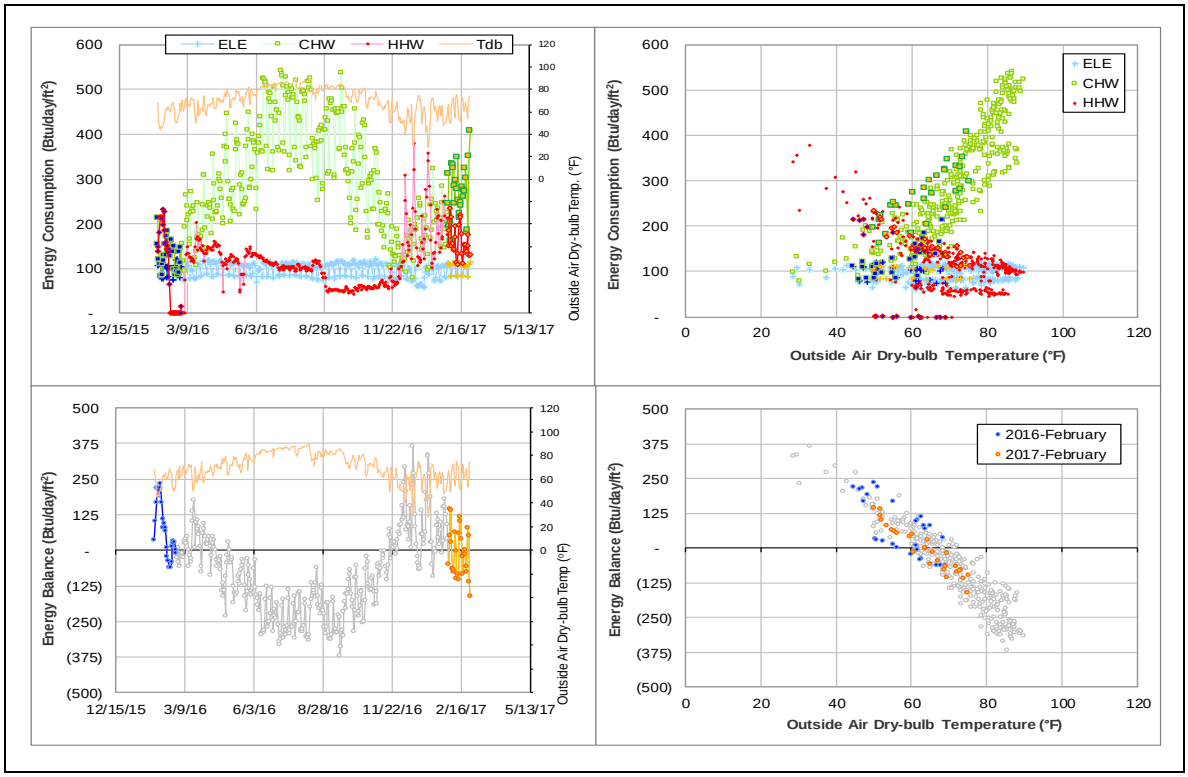
### *Quantitative descriptions and comments*

CHW consumption is 150 to 200 Btu/day/ft$^2$ higher than the previous year. Delta-T is higher but the difference is not conspicuous. See also section II-3.

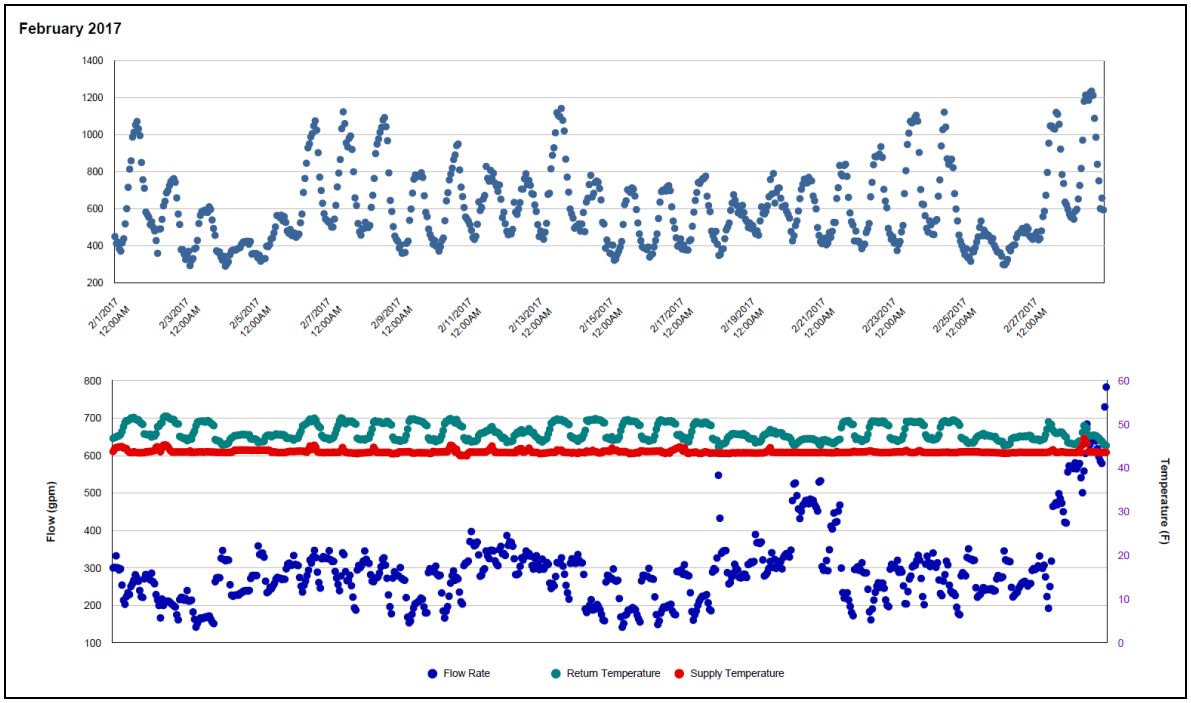
### *Explanatory Figure: 13 months energy balance plot with original data for #517 only*



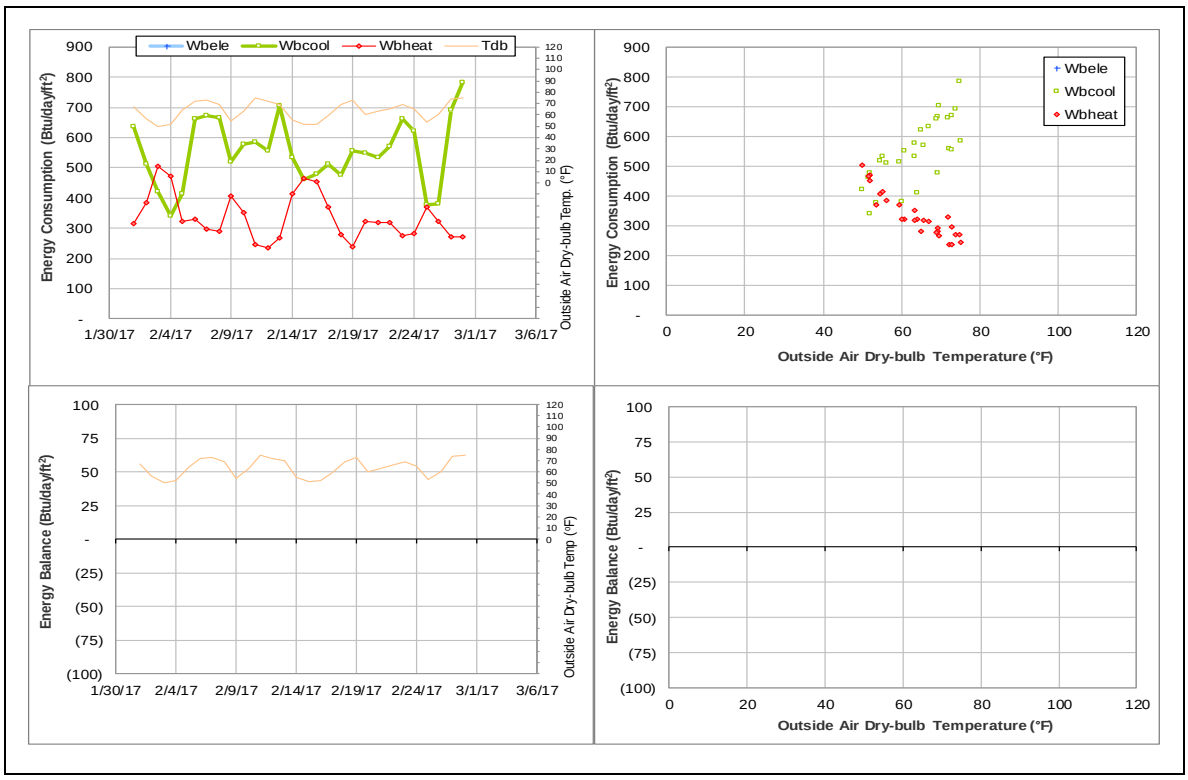
***Explanatory Figure: 13 months energy balance plot with original data for total of #445 and #517***



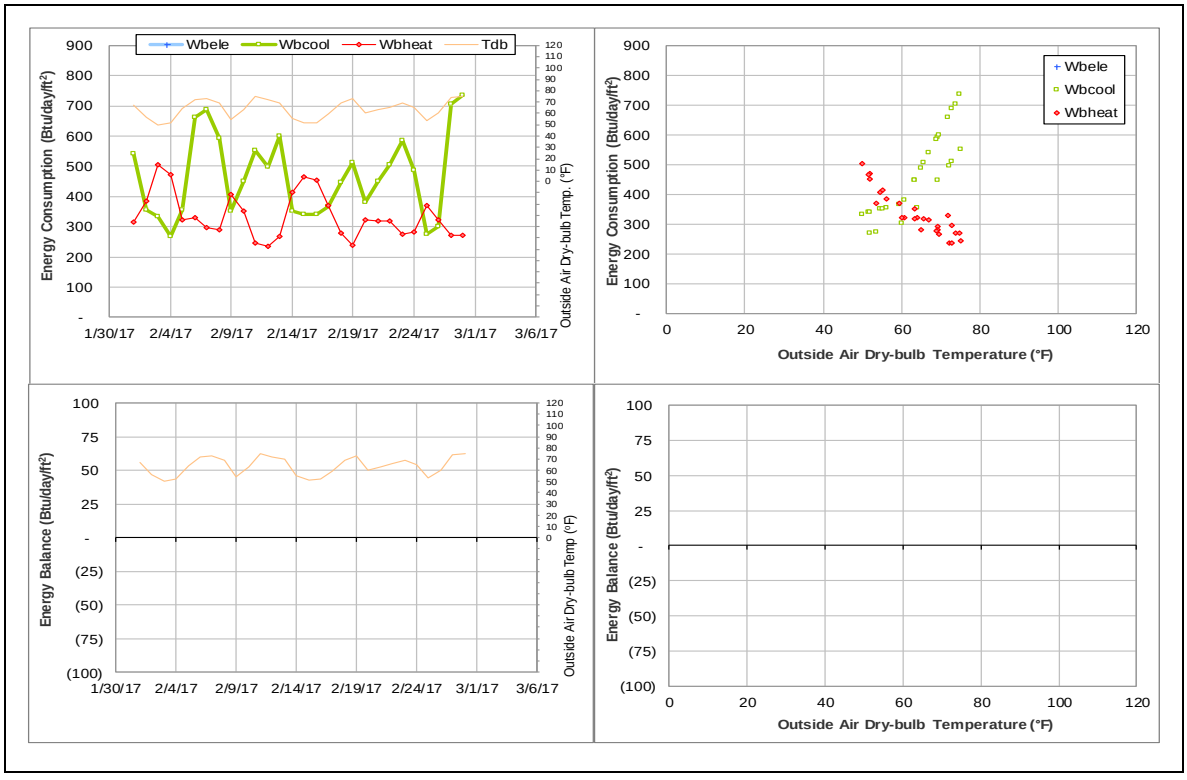
***Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during February 2017)***



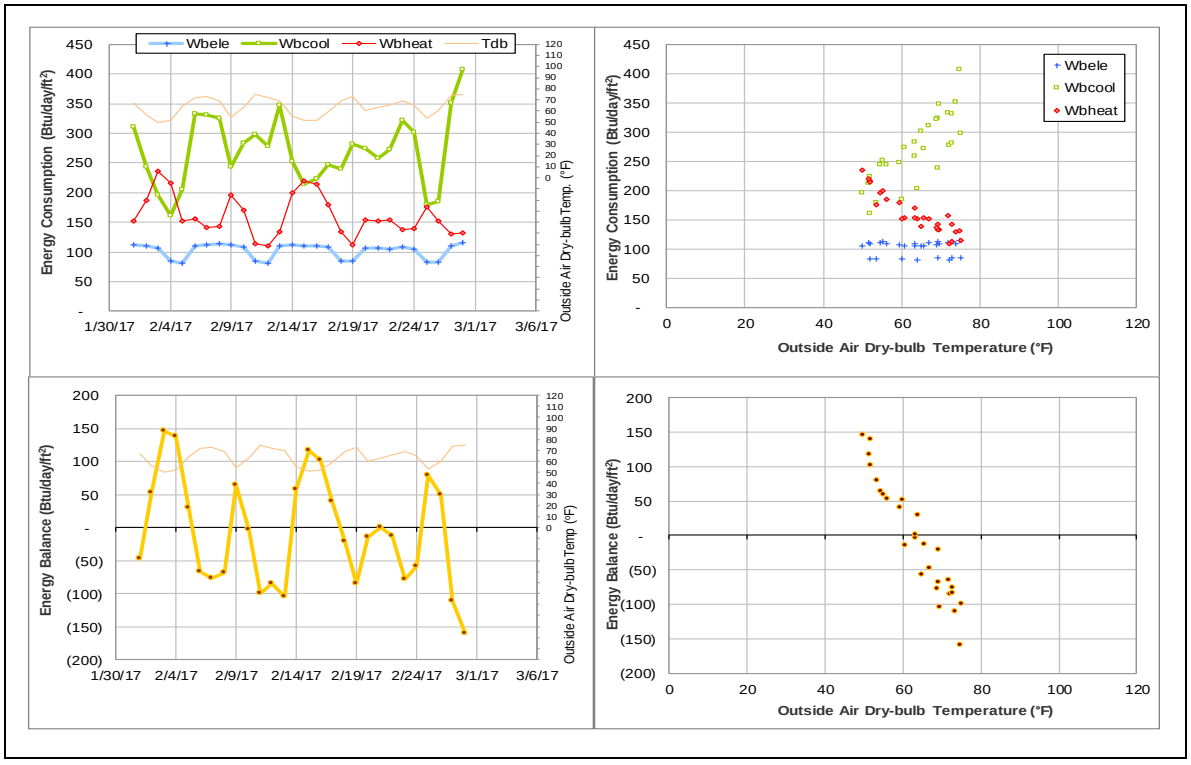
***Energy balance plot using the original data for the month of analysis for #517 only***



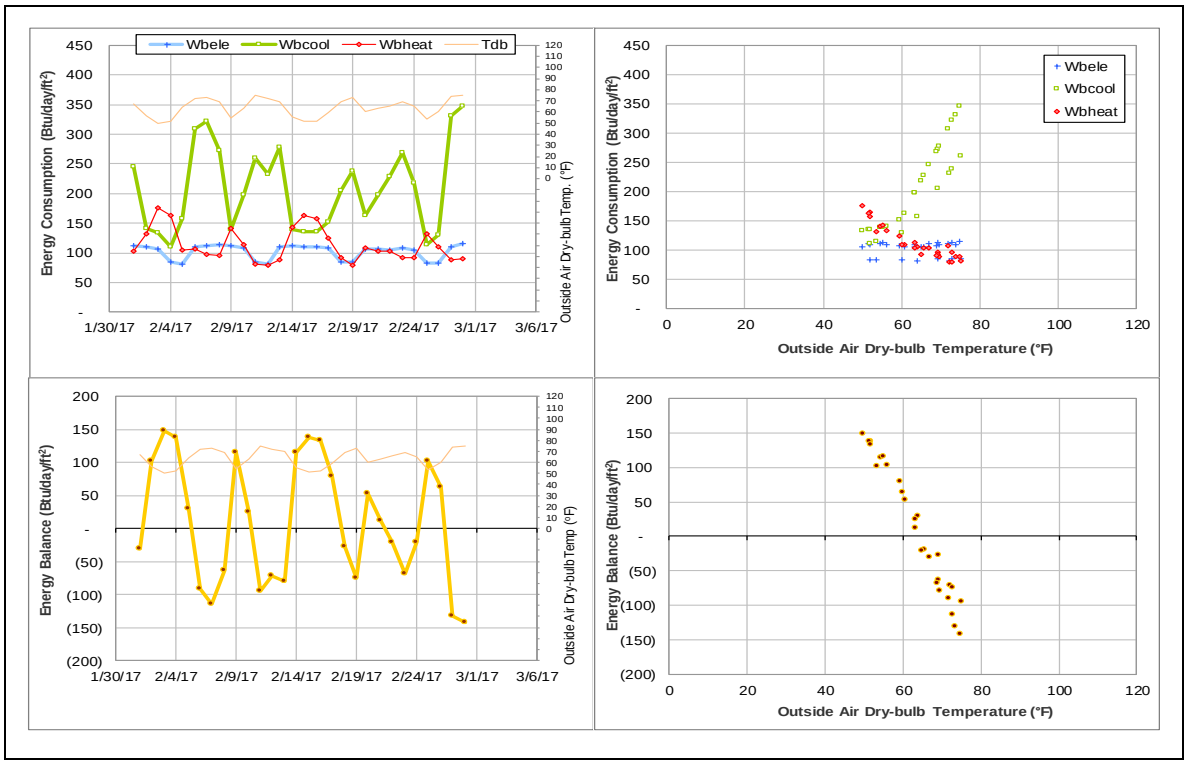

***Energy balance plot using the estimated data for the month of analysis for #517 only***



***Energy balance plot using the original data for the month of analysis for total of #445 and #517***




***Energy balance plot using the estimated data for the month of analysis for total of #445 and #517***



# Rudder Tower (TAMU Bldg #446)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 002455 | 28 | 2/1/2017 – 2/28/2017 | Model |

### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The consumption level is higher than the level during the past year. | 1/10/2017 – Ongoing |

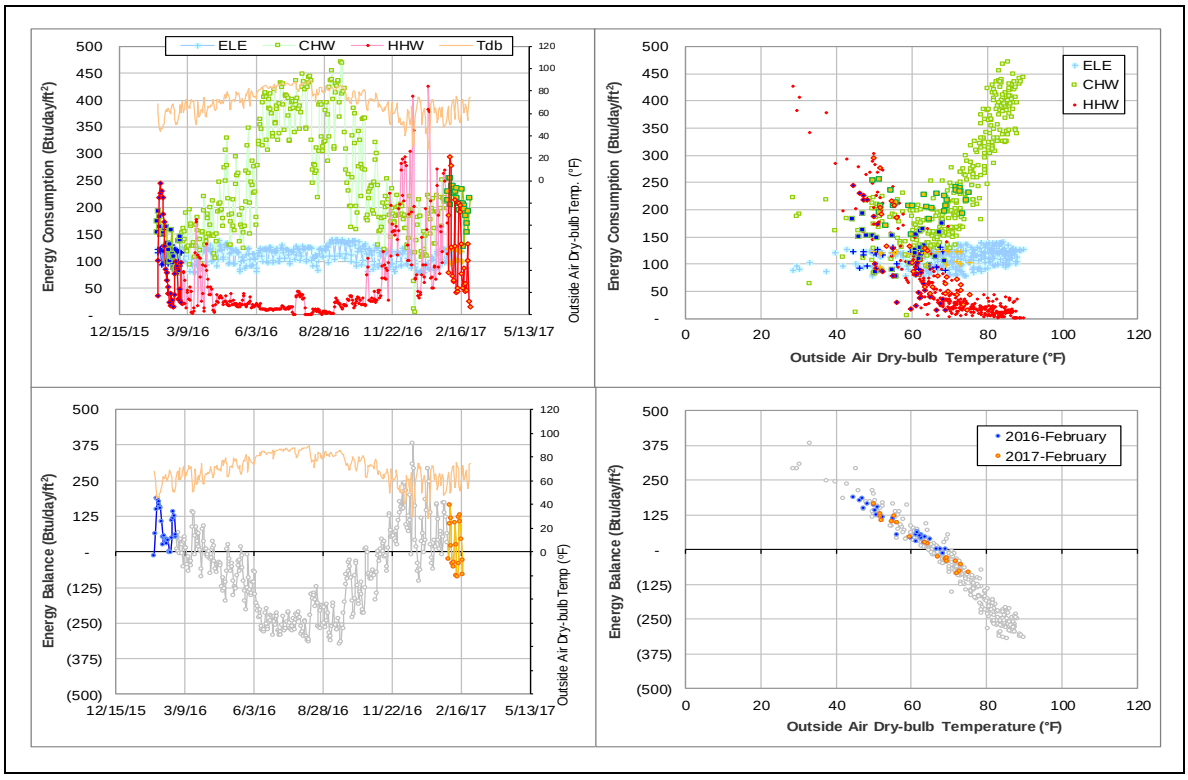
### *Changes in sensor readings related to the detected issues*

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| CHW | 002455 | 1/10/2017 – Ongoing | Delta-T and Flow Rate | Fluctuate |

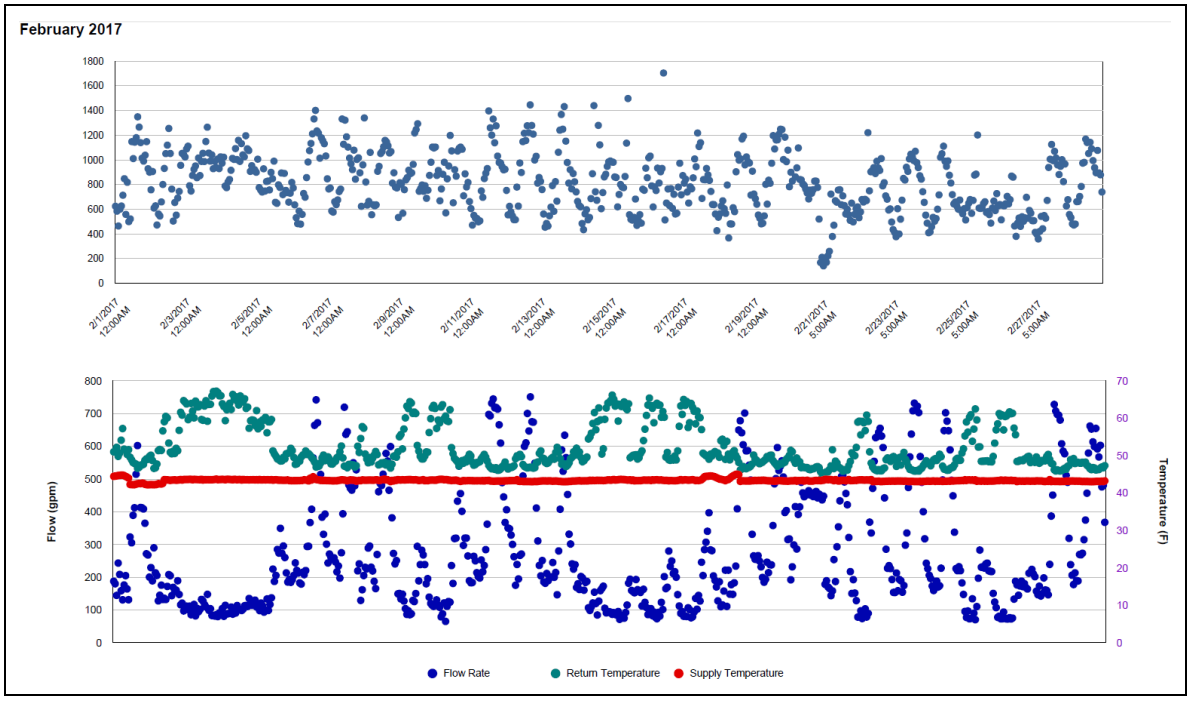
### *Quantitative descriptions and comments*

CHW started to scatter on 1/10/2017 after a period of high Delta-T. The meter readings greatly fluctuate during this period. This whole month is estimated using a model.

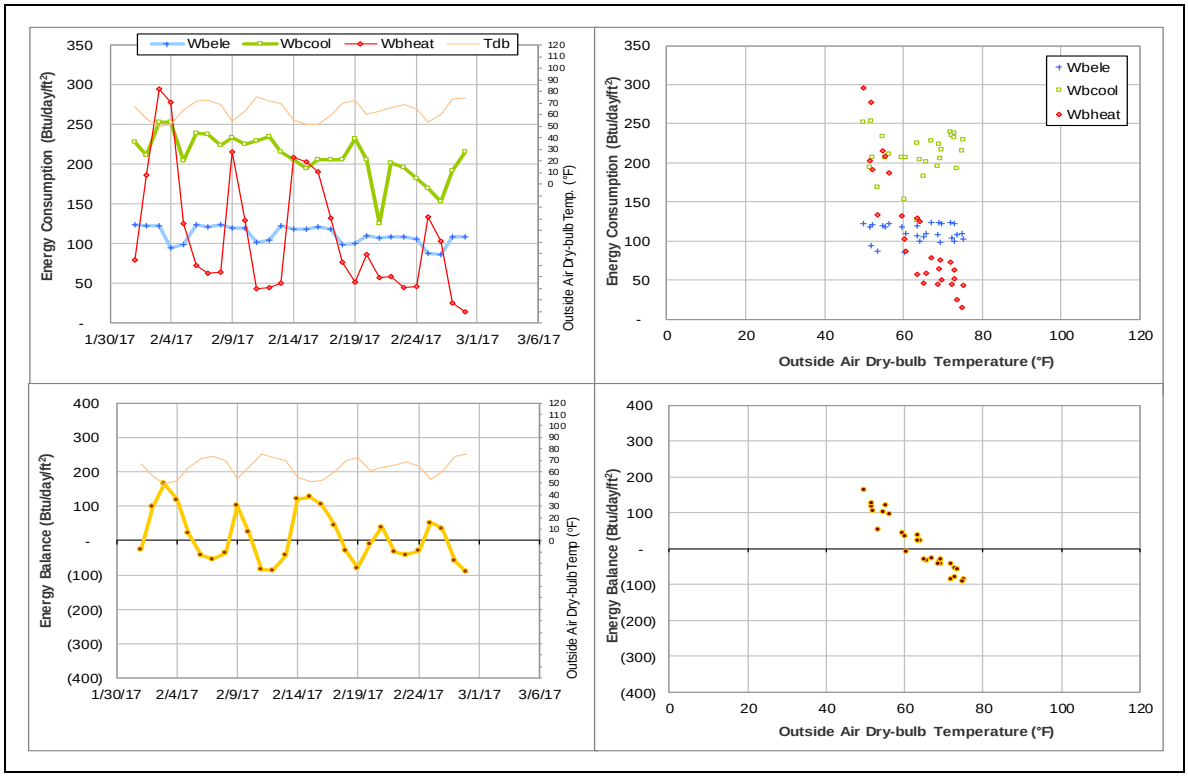
### *Explanatory Figure: 13 months energy balance plot with original data.*



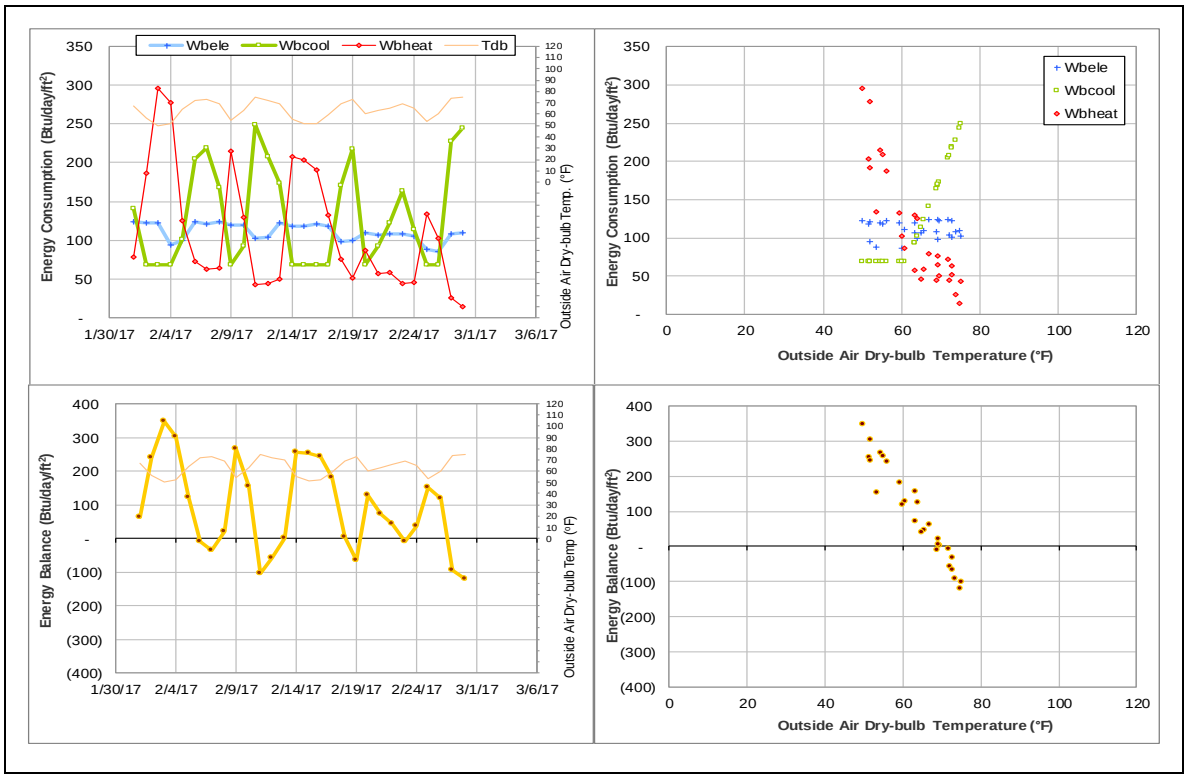
***Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during February 2017)***



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis.***



# Biological Sciences Building – East (TAMU Bldg #467)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 003851 | 28 | 2/1/2017 – 2/28/2017 | Model |

### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The metered values appear to be faulty. | 8/6/2016 – Ongoing |

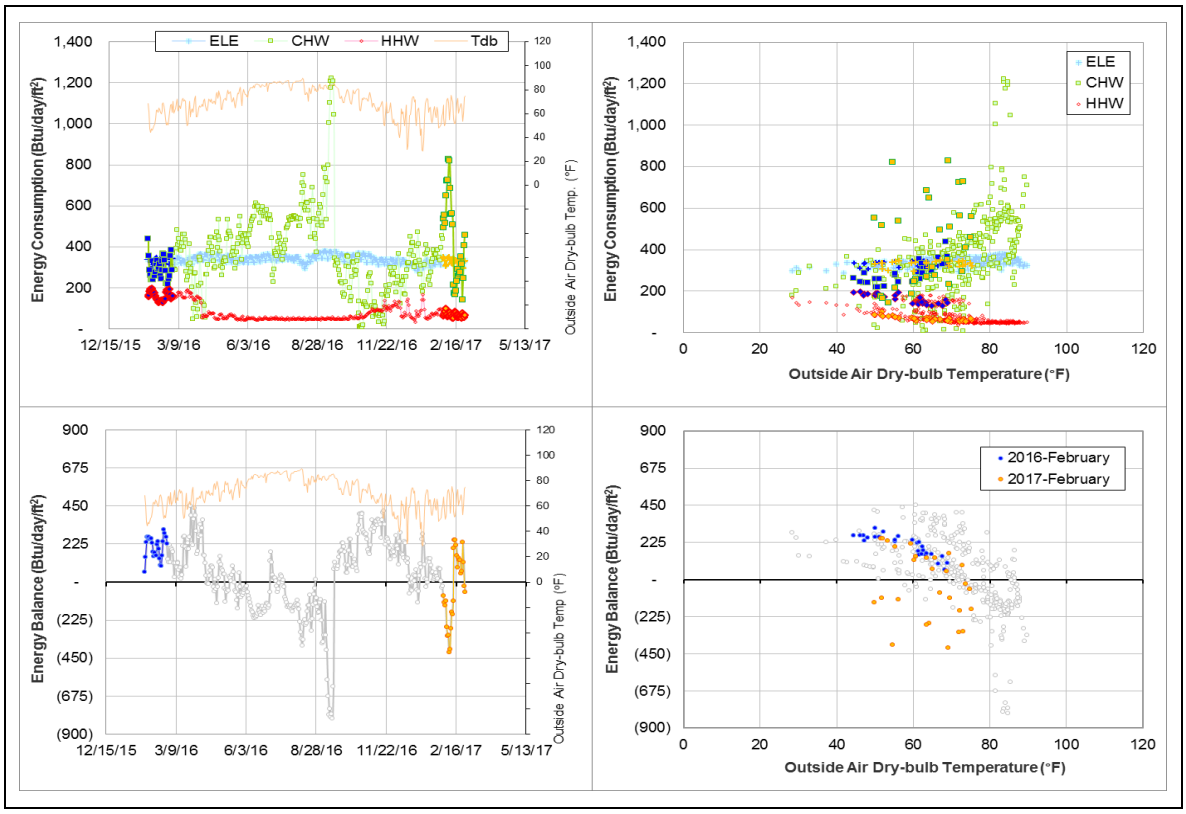
### *Changes in sensor readings related to the detected issues*

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| CHW | 003851 | 8/6/2016 – Ongoing | Supply Temp | Faulty |

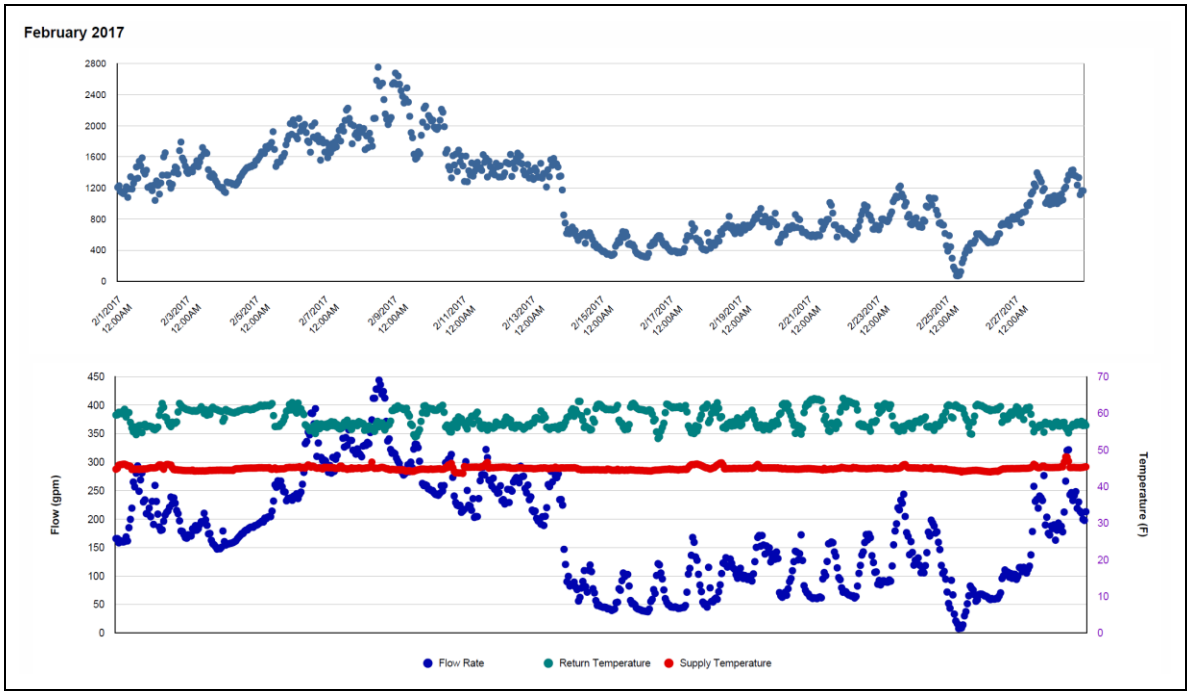
### *Quantitative descriptions and comments*

The CHW supply temp readings started to decrease on 8/6/2016 while all adjacent buildings have stable supply temp at around 42°F. The supply temp had a period of obviously erroneous values of 20°F during 9/10 – 9/20/2016, and then increased to 45°F. The readings are still questionable and the whole month is estimated using a model.

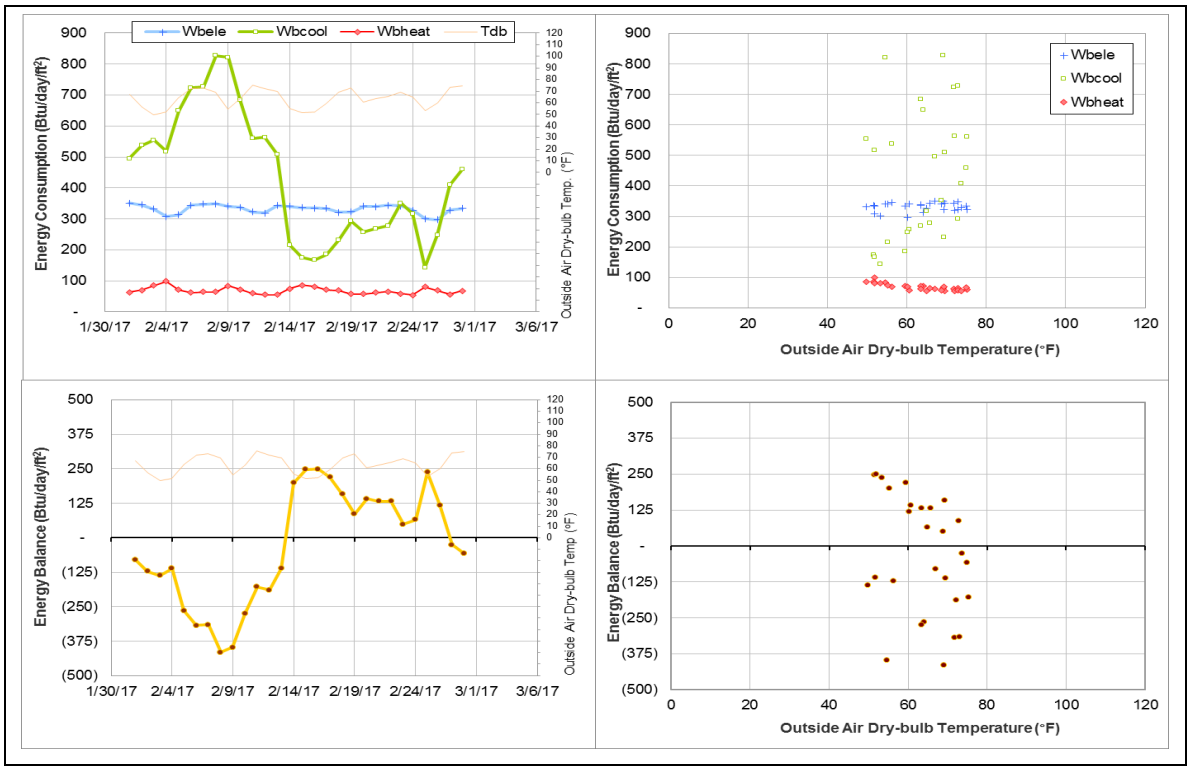
### *Explanatory Figure: 13 months energy balance plot with original data.*



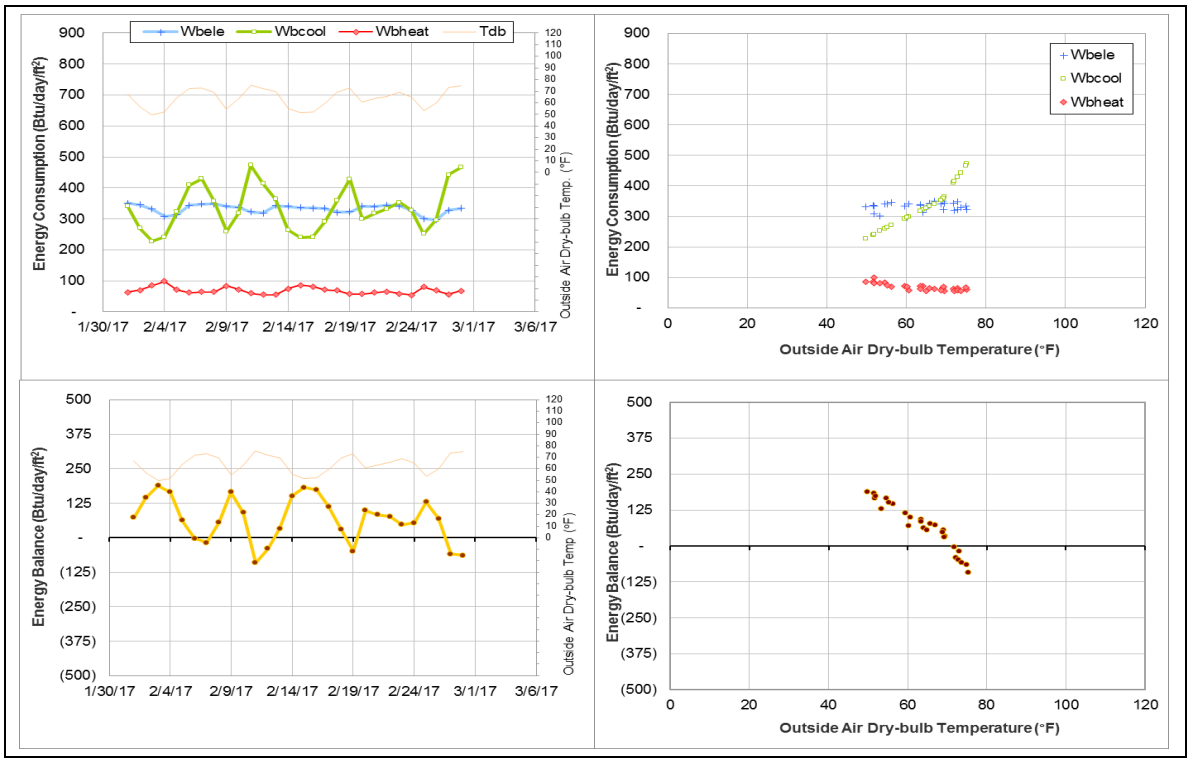
***Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during February 2017)***



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis***



# Heaton Hall (TAMU Bldg #481)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 007531 | 28 | 2/1/2017 – 2/28/2017 | Model |
| HHW | 007535 | 28 | 2/1/2017 – 2/28/2017 | Model |

### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The CHW consumption decreased. | 2/1/2017 – 2/28/2017 |
| HHW | The HHW consumption decreased. | 2/1/2017 – 2/28/2017 |

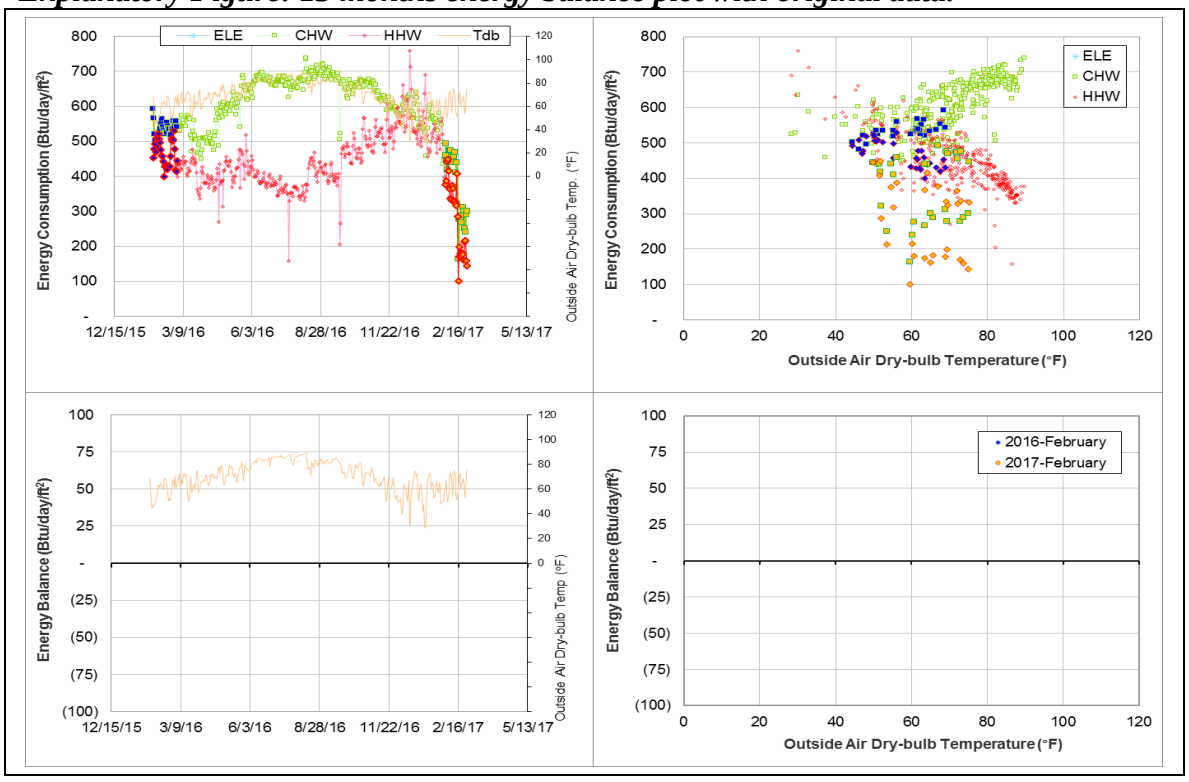
### *Changes in sensor readings related to the detected issues*

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| CHW | 007531 | 2/1/2017 – 2/28/2017 | Flow rate | Decreased |
| HHW | 007535 | 2/1/2017 – 2/28/2017 | Flow rate | Decreased |

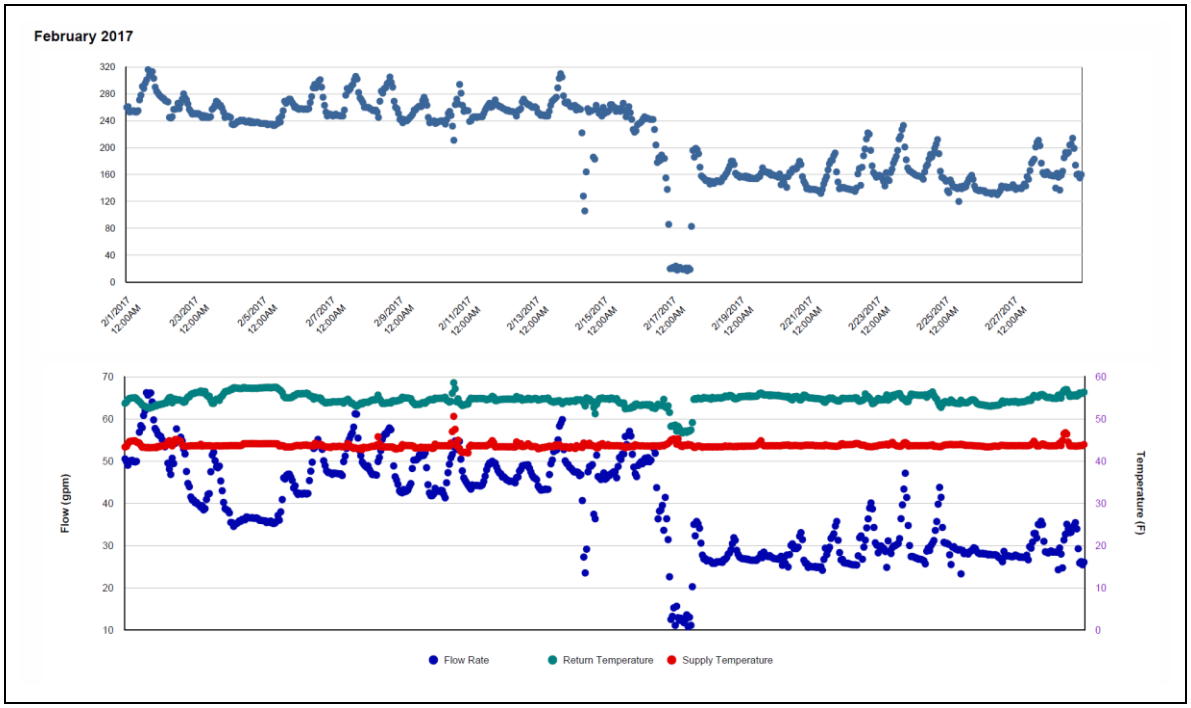
### *Quantitative descriptions and comments*

The CHW and HHW consumption decreased by about 100 Btu/day/ft$^2$ at the beginning of the month and decreased further by about 200 Btu/day/ft$^2$ more around 2/17/2017. Both the CHW and HHW for the whole month were estimated by model.

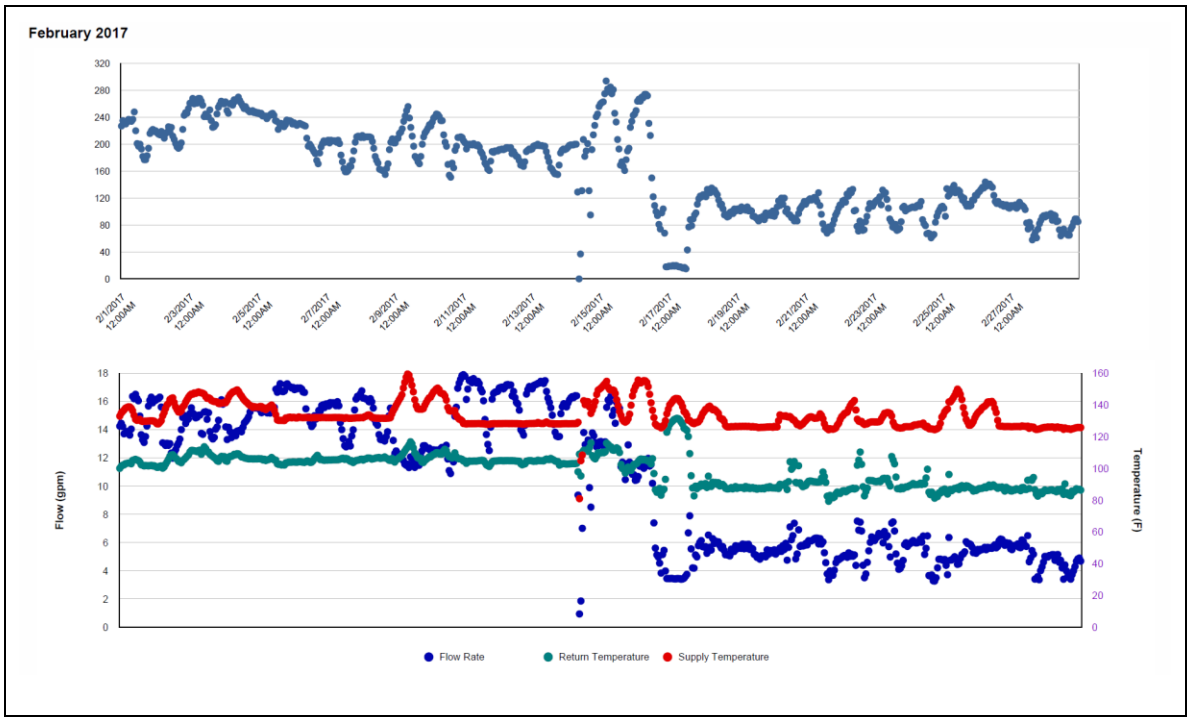
### *Explanatory Figure: 13 months energy balance plot with original data.*



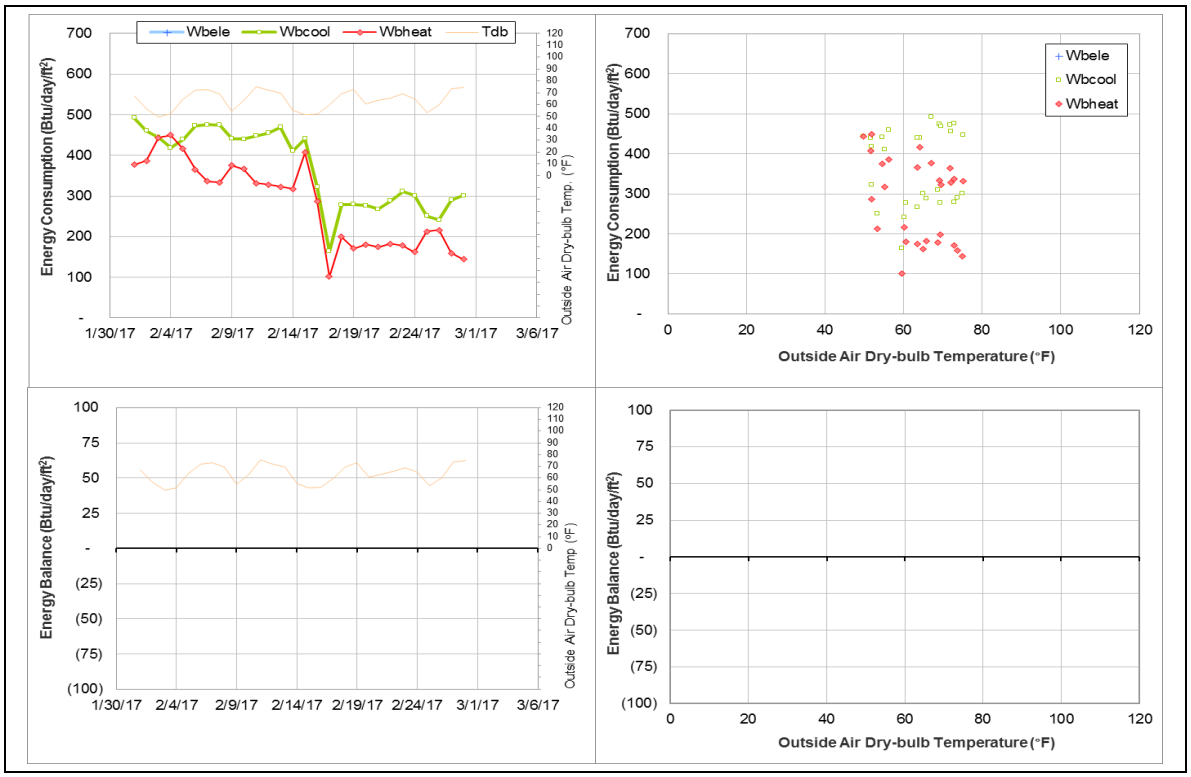
***Explanatory Figure: Time series plots of hourly CHW energy consumption, flow, and supply/return temperatures from utilities office. (February 2017)***



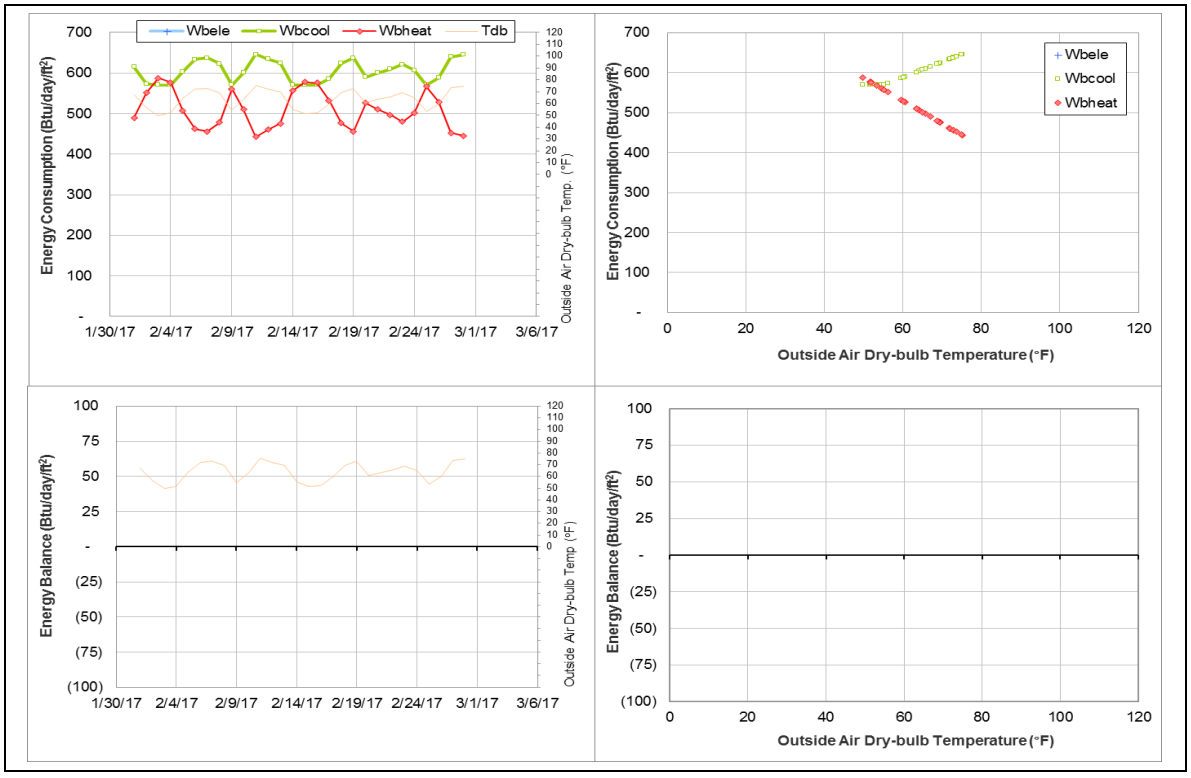

***Explanatory Figure: Time series plots of hourly HHW energy consumption, flow, and supply/return temperatures from utilities office. (February 2017)***



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis***



# Halbouty Geosciences Building (TAMU Bldg #490)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| HHW | 006900 | 28 | 2/1/2017 – 2/28/2017 | Model |

### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| HHW | The HHW consumption decreased to zero. | 12/19/2016 – 2/28/2017 |

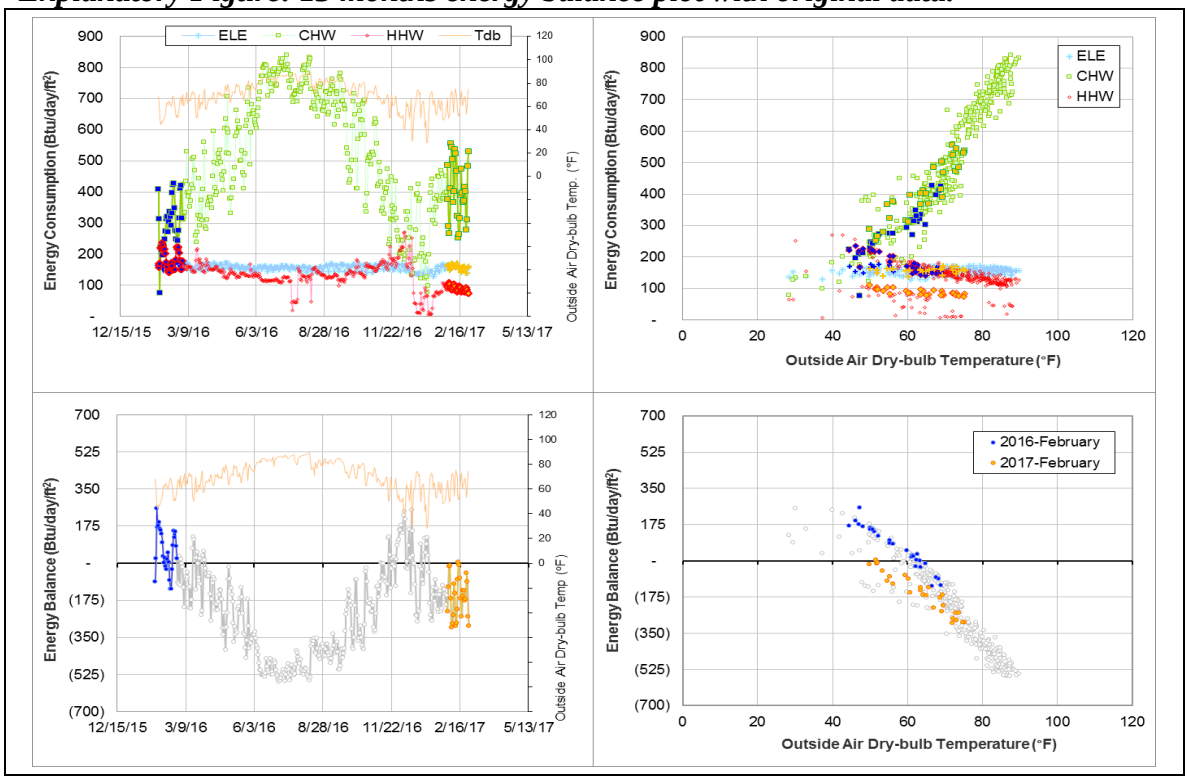
### *Changes in sensor readings related to the detected issues*

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| HHW | 006900 | 12/19/2017 – 1/13/2017 | Flow rate | Faulty, Constant value |
| | | 12/19/2017 – 2/28/2017 | Supply and return temperature | Faulty, Constant value |

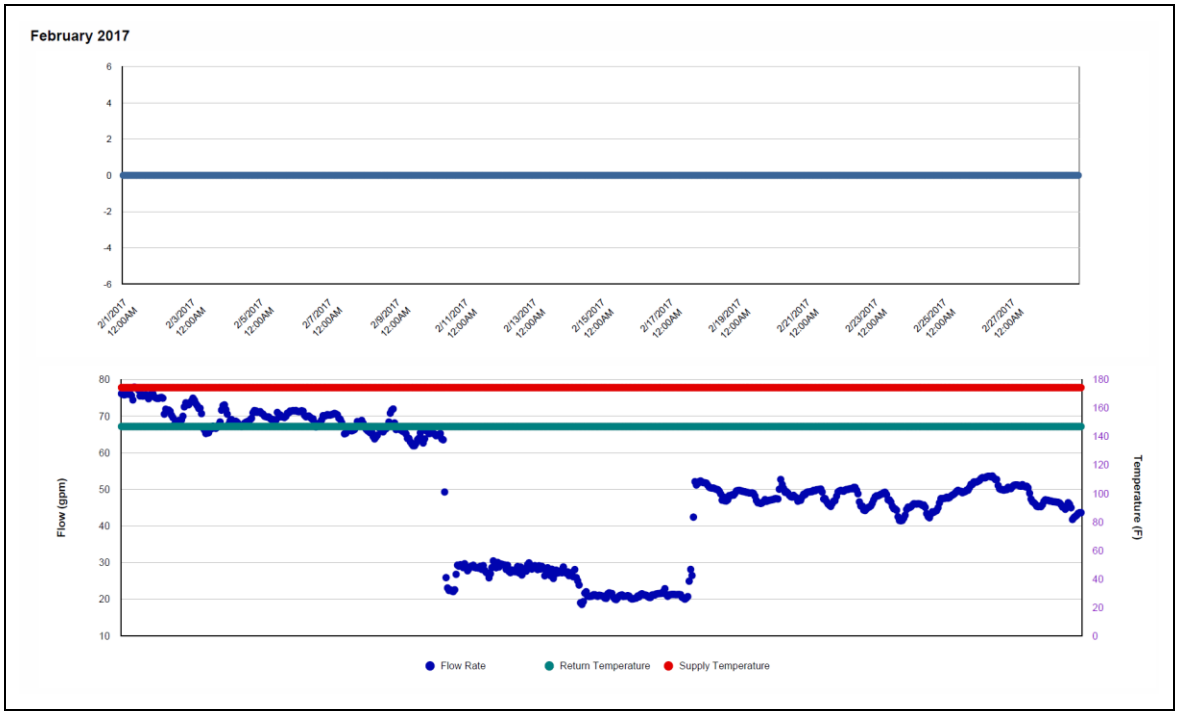
### *Quantitative descriptions and comments*

Starting 12/19/2016, for HHW MID 006900, the consumption suddenly decreased and remained at zero caused by faulty flow rate and supply and return temperature with constant values. The flow rate seemed to be fixed on 1/13/2017, but the temperature sensors still maintained at constant value. The HHW for the whole month was estimated by model for this meter.

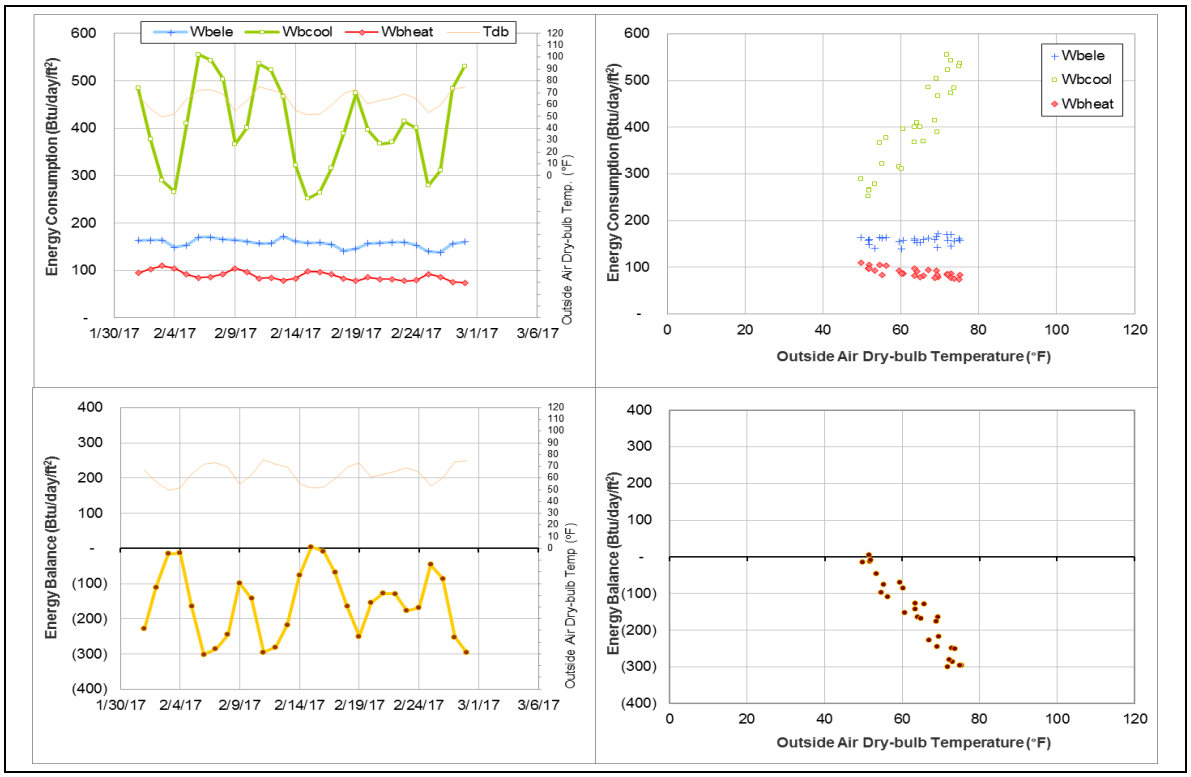
### *Explanatory Figure: 13 months energy balance plot with original data.*



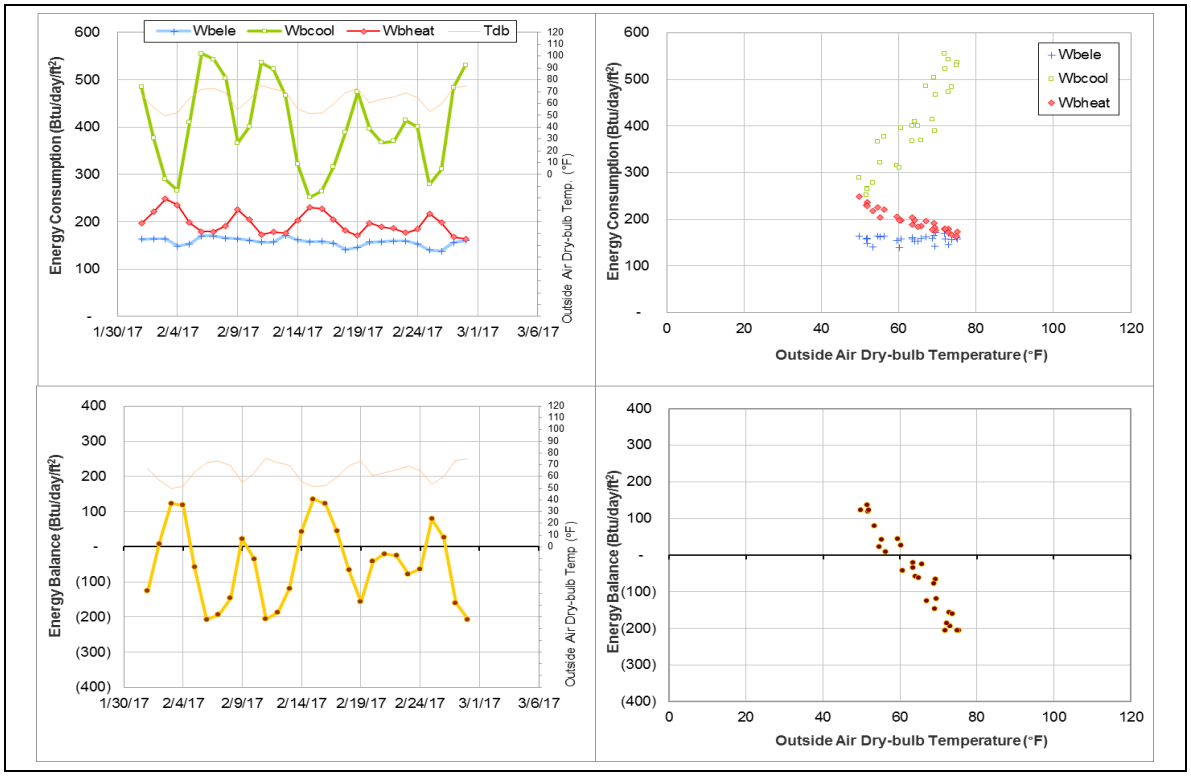
***Explanatory Figure: Time series plots of MID 006900 hourly HHW energy consumption, flow, and supply/return temperatures from utilities office. (February 2017)***



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis***



# Engineering Innovation Center (TAMU Bldg #499)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 002672 | 8 | 2/21/2017 – 2/28/2017 | Model |
| HHW | 002683 | 8 | 2/21/2017 – 2/28/2017 | Model |

### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The CHW consumption decreased. | 2/21/2017 – 2/28/2017 |
| HHW | The HHW consumption decreased. | 2/21/2017 – 2/28/2017 |

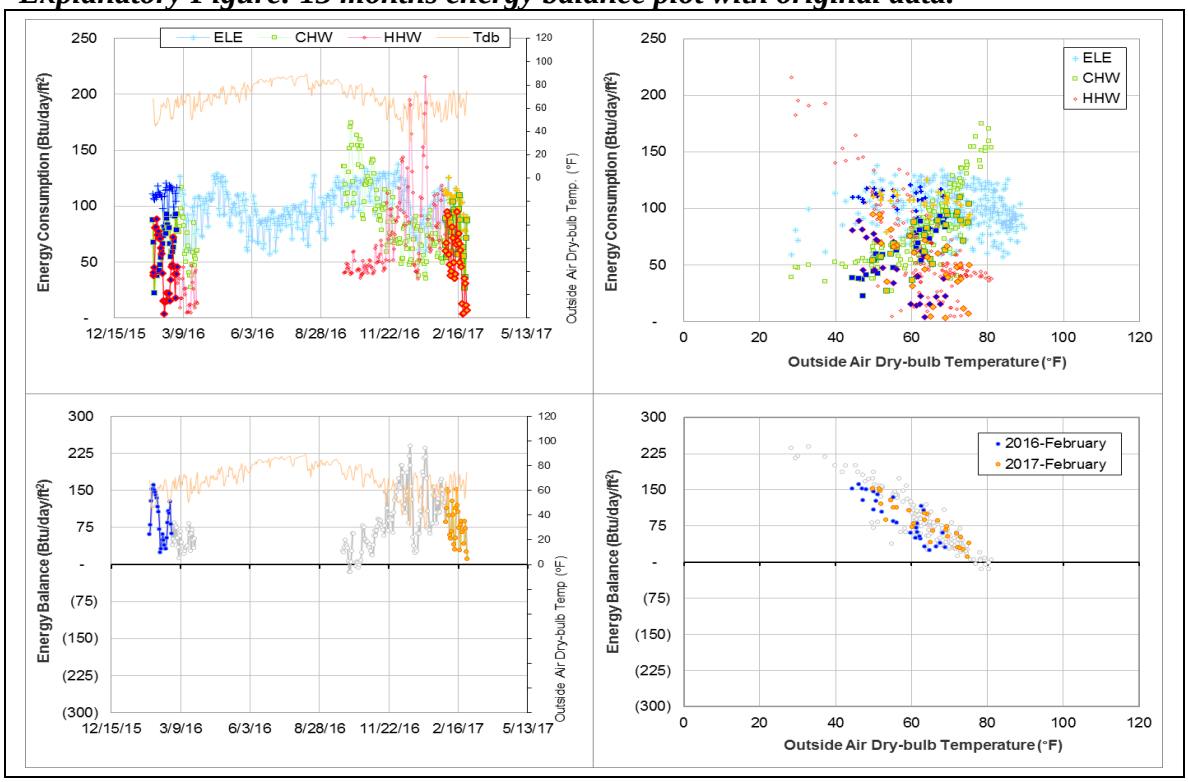
### *Changes in sensor readings related to the detected issues*

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| CHW | 002672 | 2/21/2017 – 2/28/2017 | Return Temperature | Increased |
| HHW | 002683 | 2/21/2017 – 2/28/2017 | Delta-T | Decreased |

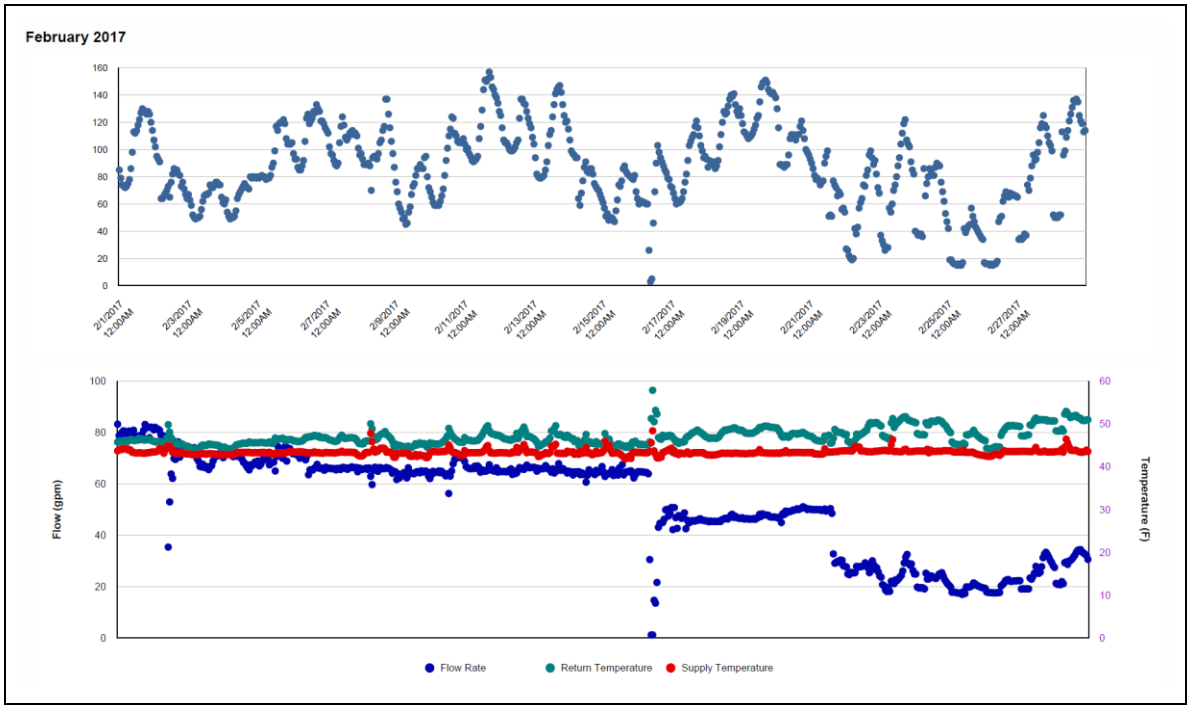
### *Quantitative descriptions and comments*

The CHW return temperature increased starting 2/21/2017. The HHW delta-T decreased to zero and near zero also starting 2/21/2017. Both the CHW and HHW consumption were estimated for this period.

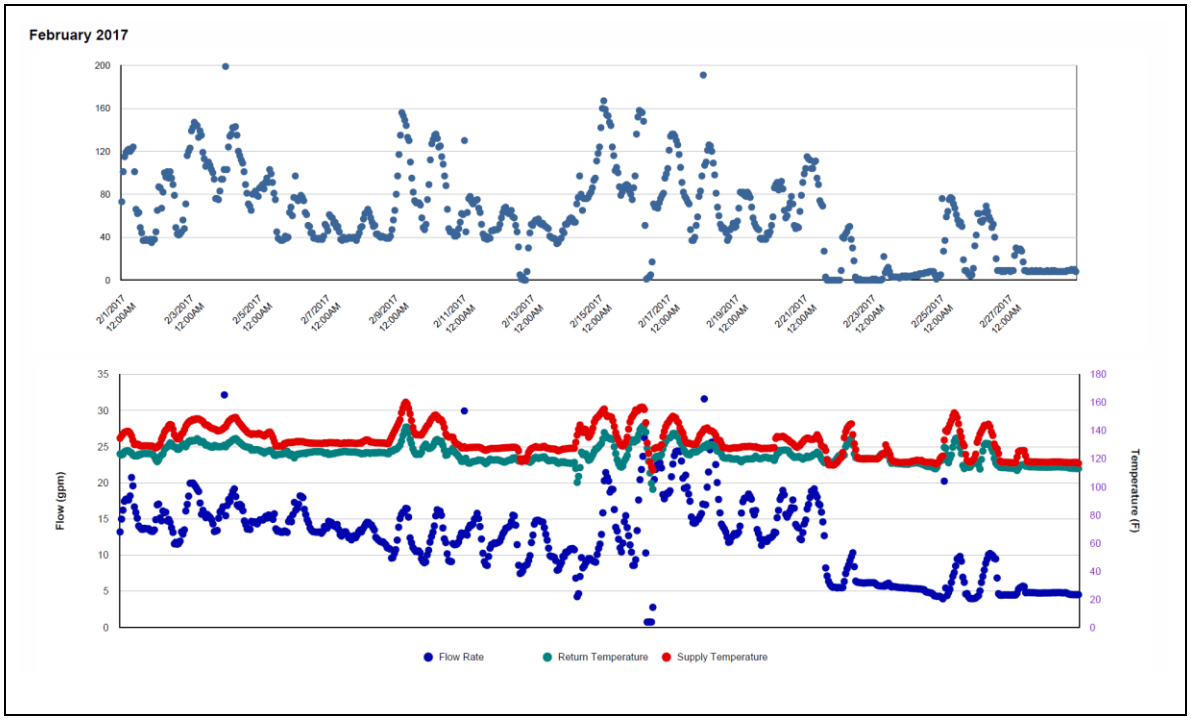
### *Explanatory Figure: 13 months energy balance plot with original data.*



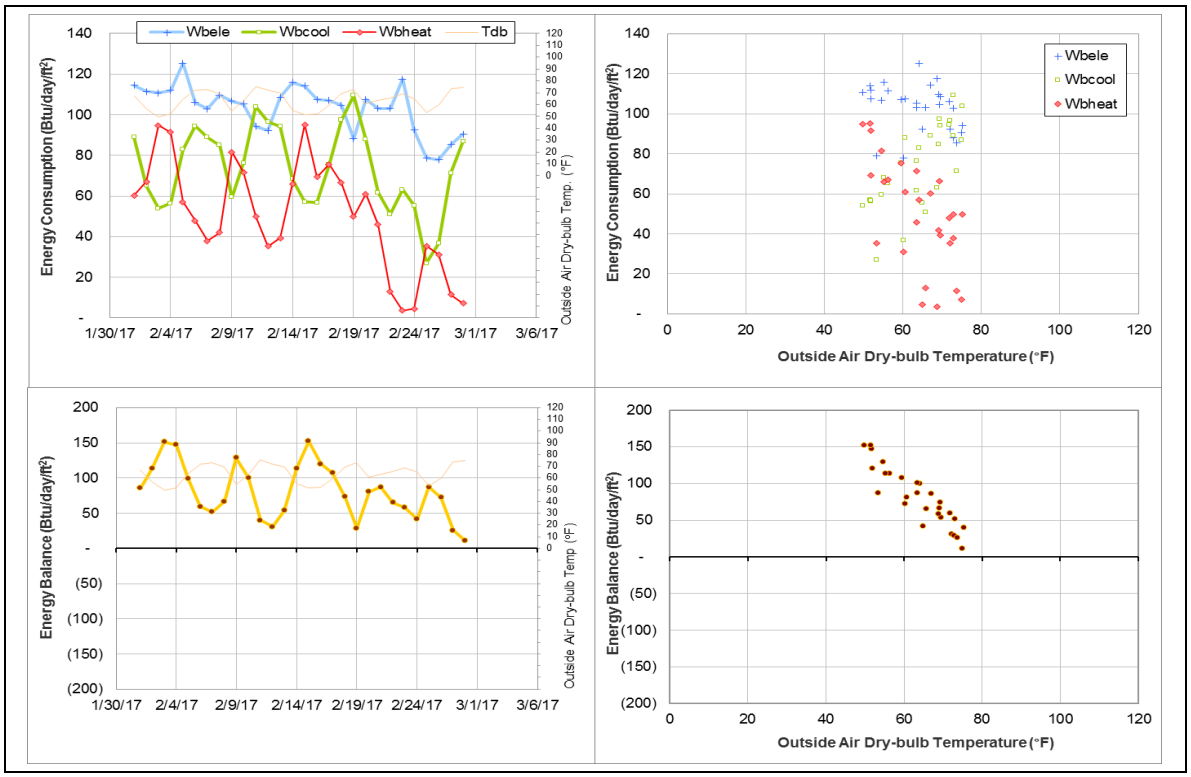
***Explanatory Figure: Time series plots of hourly CHW energy consumption, flow, and supply/return temperatures from utilities office. (February 2017)***



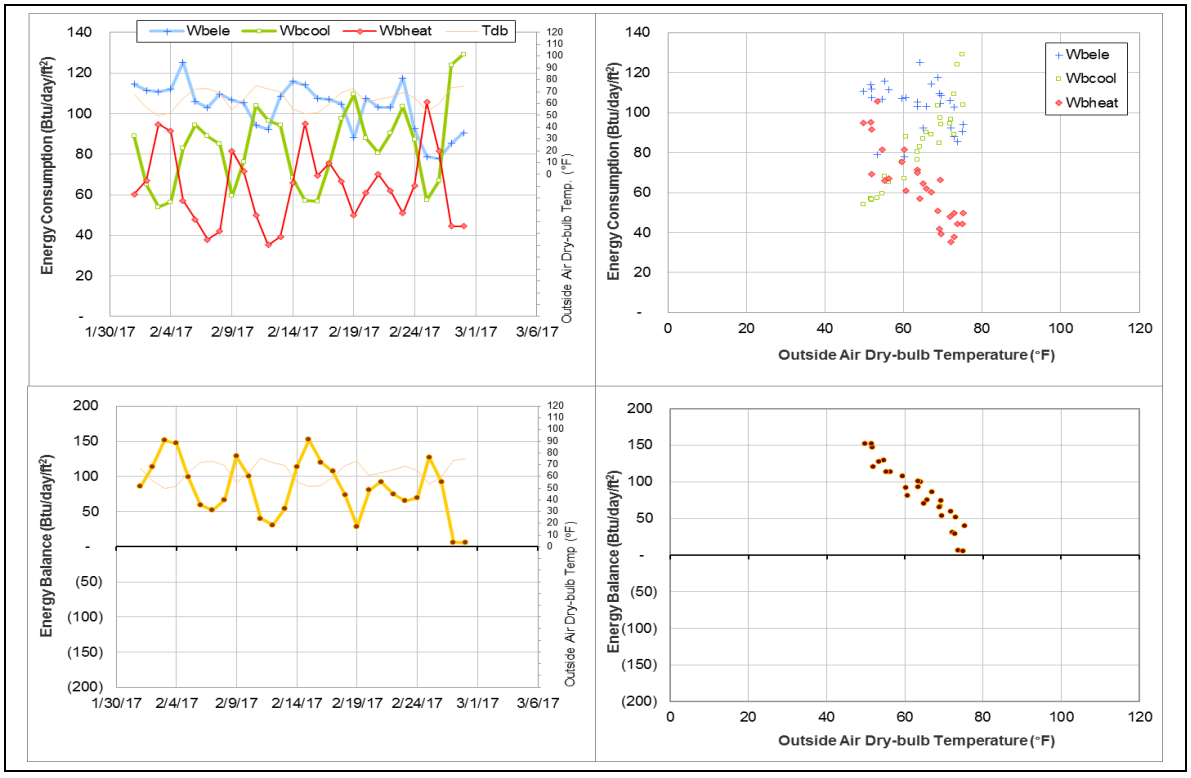

***Explanatory Figure: Time series plots of hourly HHW energy consumption, flow, and supply/return temperatures from utilities office. (February 2017)***



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis***



# Veterinary Teaching Hospital and Veterinary Medicine Administration (TAMU Bldg #508-1026)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 004166 | 5 | 2/24/2017 – 2/28/2017 | Model |

### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The CHW consumption decreased to zero. | 2/24/2017 – 2/28/2017 |

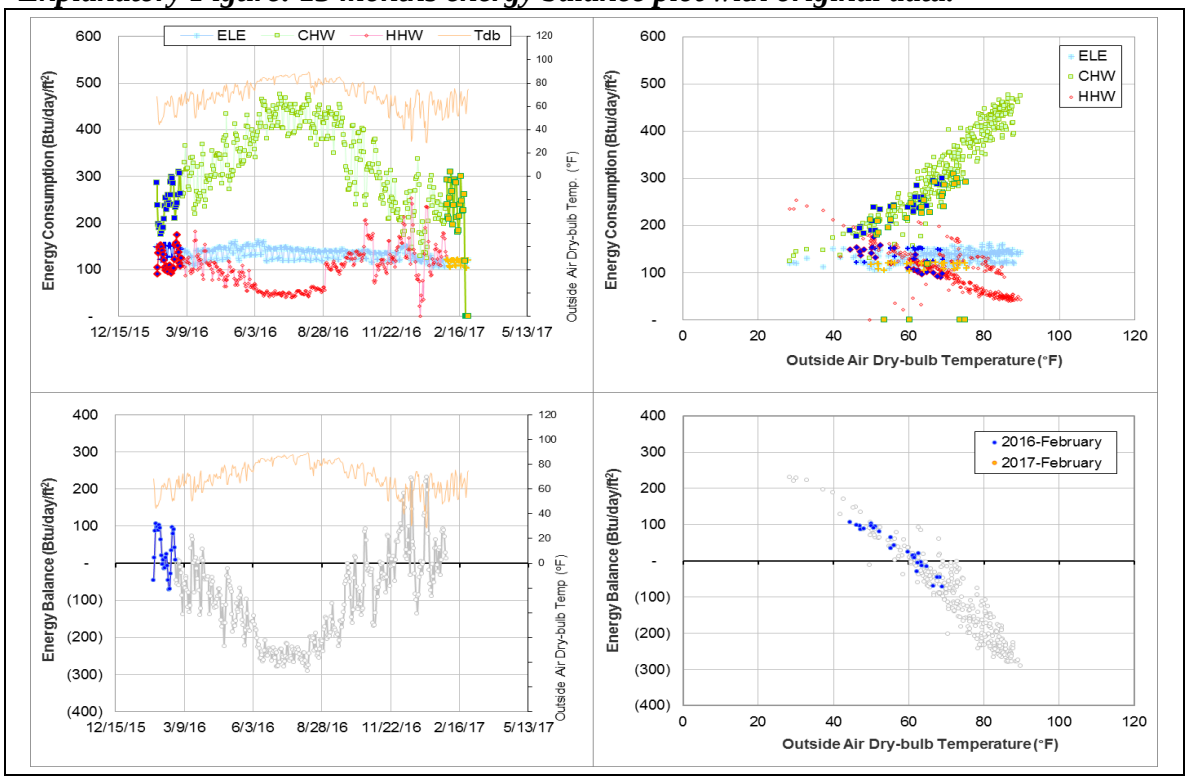
### *Changes in sensor readings related to the detected issues*

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| CHW | 004166 | 2/24/2017 – 2/28/2017 | Flow rate | Faulty, Constant value |
| | | 2/24/2017 – 2/28/2017 | Supply and return temperature | Faulty, Constant value |

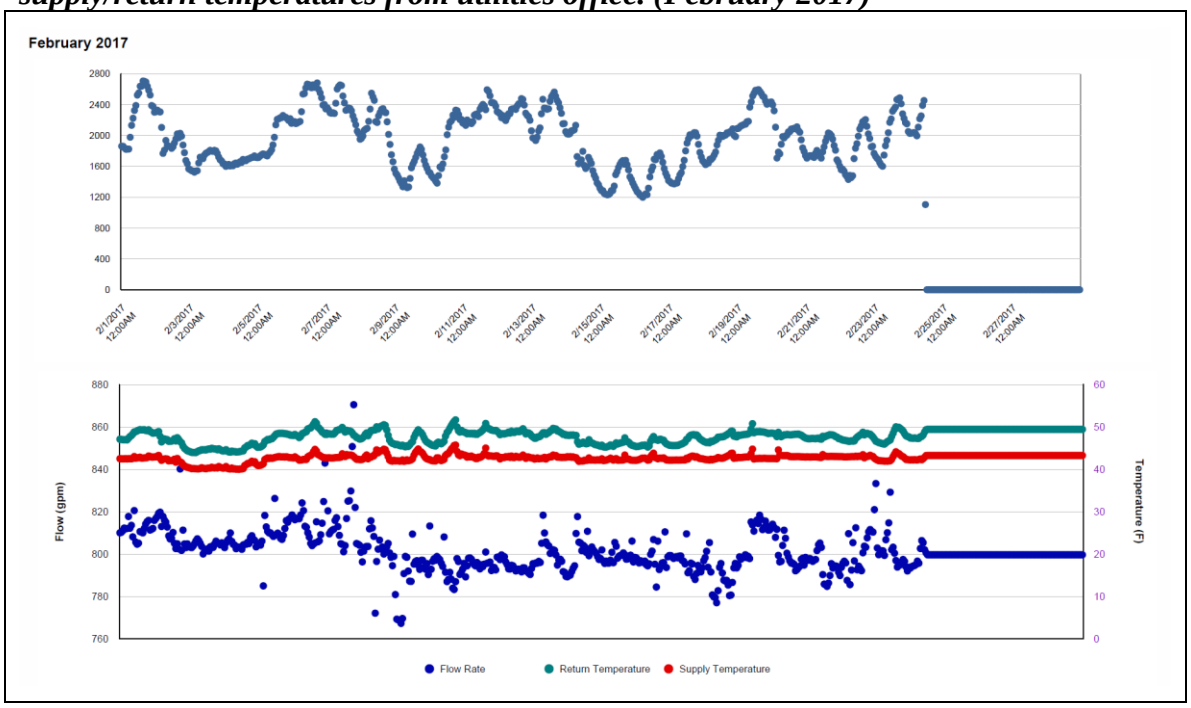
### *Quantitative descriptions and comments*

Starting 2/24/2017, the CHW consumption suddenly decreased and remained at zero caused by faulty flow rate and supply and return temperature with constant values. The CHW was estimated by model for this period.

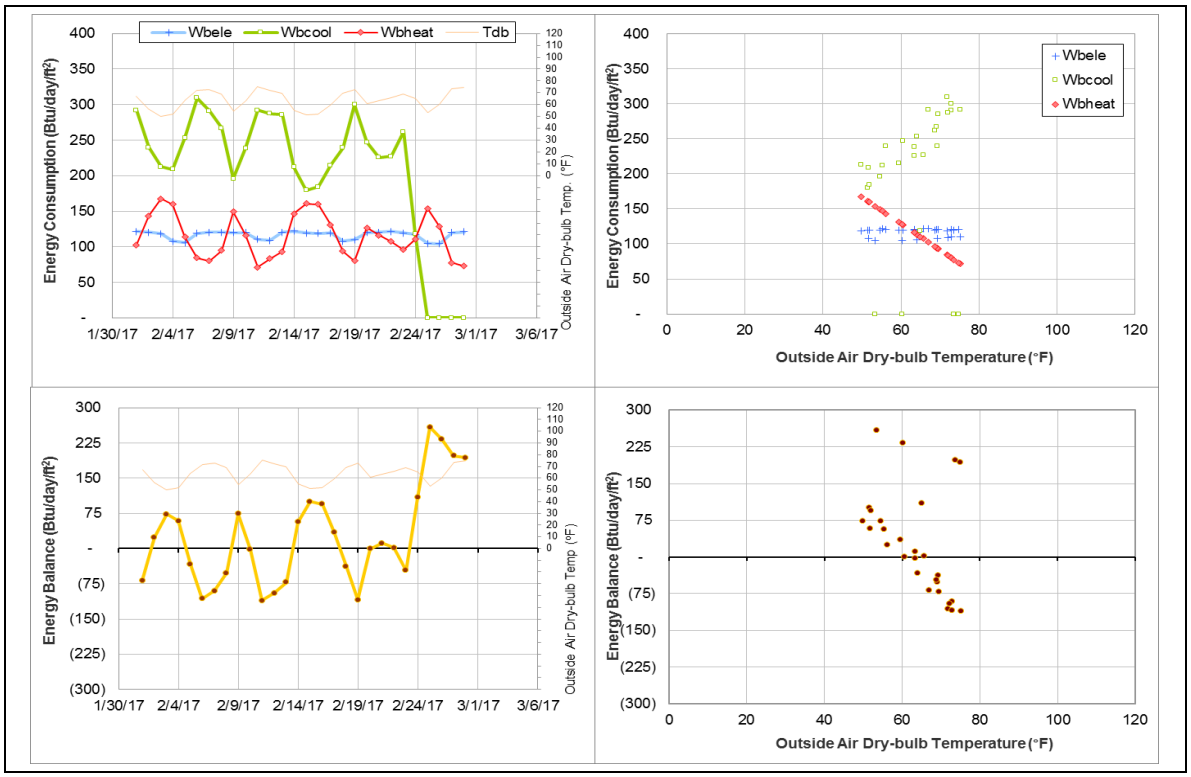
### *Explanatory Figure: 13 months energy balance plot with original data.*



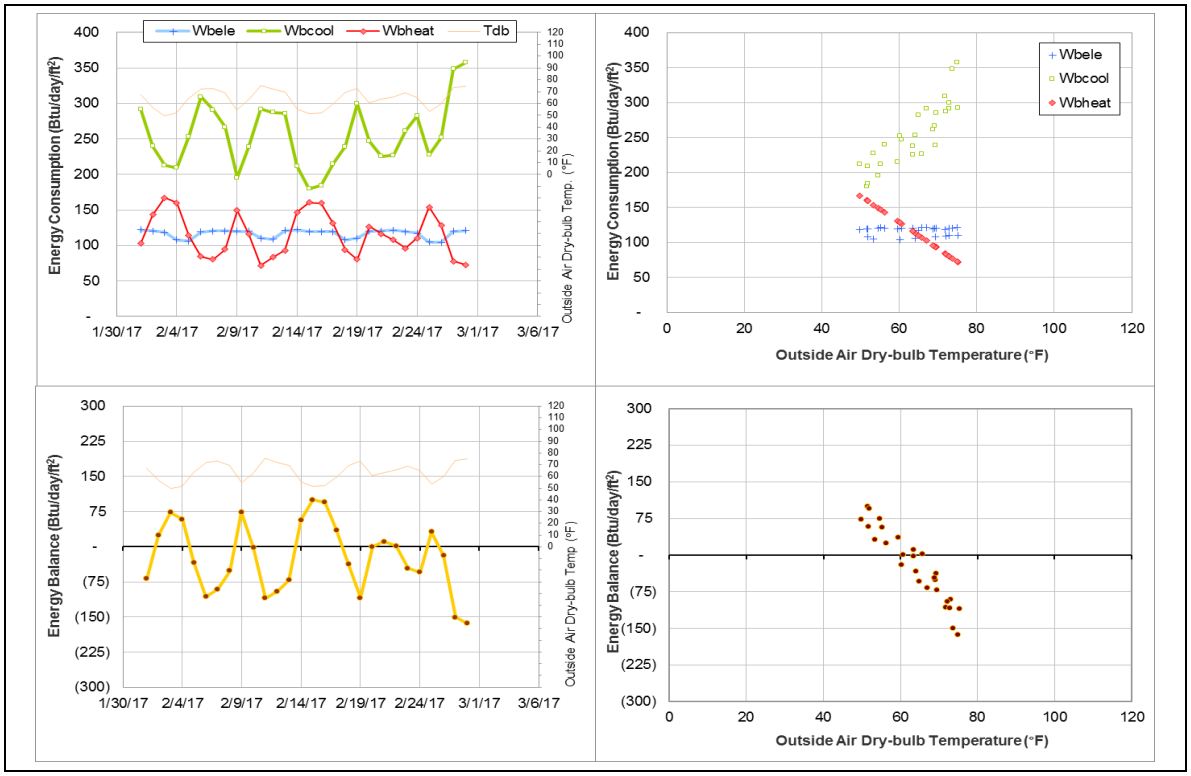
***Explanatory Figure: Time series plots of hourly CHW energy consumption, flow, and supply/return temperatures from utilities office. (February 2017)***



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis***



# Heep Laboratory Building (TAMU Bldg #511)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 005821 | 12 | 2/1/2017 – 2/4/2017<br>2/9/2017 – 2/16/2017 | Model |
| HHW | 005825 | 9 | 2/4/2017, 2/9/2017 – 2/16/2017 | Model |

### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The consumption level increased. | 6/14/2016 – 2/4/2017 |
| | The consumption decreased to zero. | 2/4/2017, 2/9/2017 – 2/11/2017 |
| HHW | The consumption decreased to zero. | 2/4/2017, 2/9/2017 – 2/16/2017 |

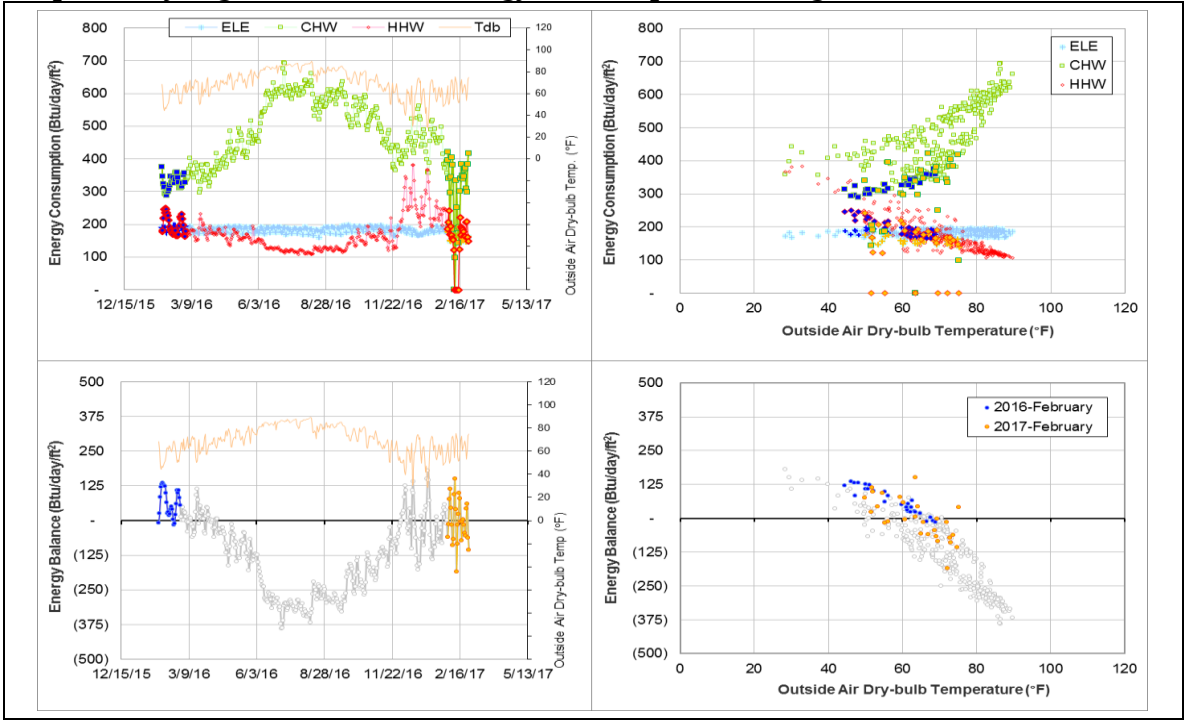
### *Changes in sensor readings related to the detected issues*

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| CHW | 005821 | 6/14/2016 – 2/4/2017 | Delta-T | Increased |
| | | 2/4/2017, 2/9/2017 – 2/11/2017 | Flow rate | Zero |
| HHW | 005825 | 2/4/2017, 2/9/2017 – 2/16/2017 | Flow rate | Zero |

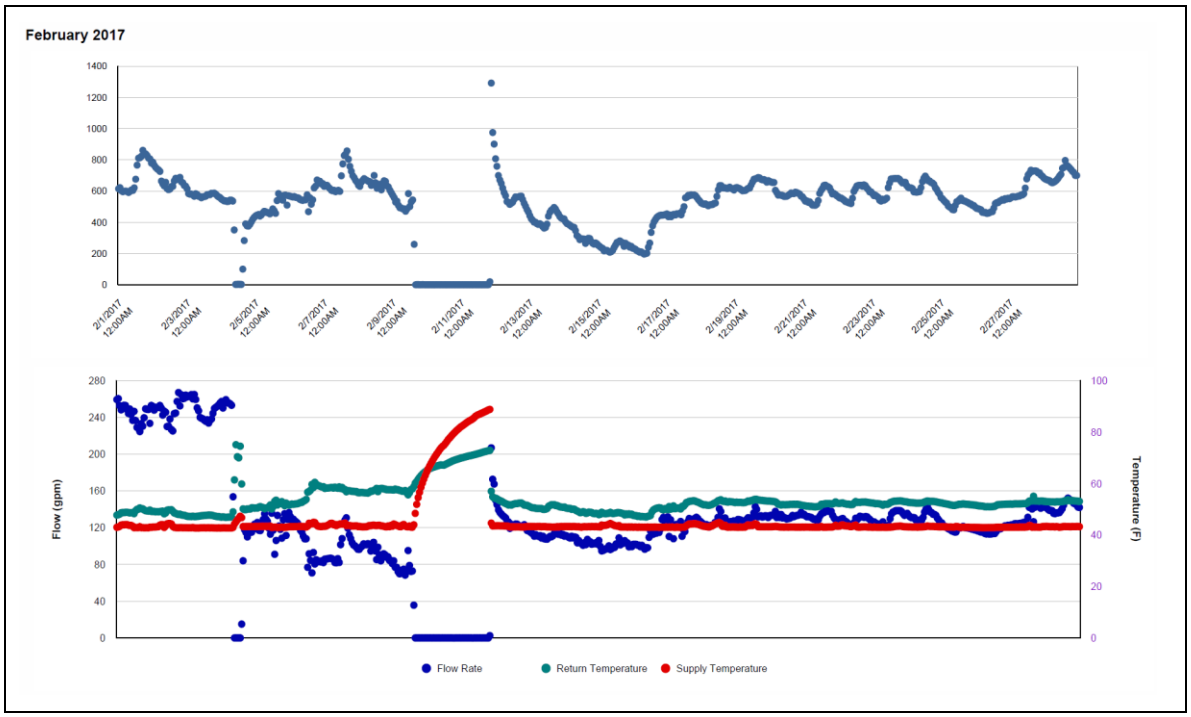
### *Quantitative descriptions and comments*

The CHW consumption increased by 100 Btu/day/ft$^2$ starting around 6/14/2016 and the pattern continued through 2/4/2017. Conversely, the CHW consumption dropped to zero on part of 2/4/2017 as well as 2/9/2017 – 2/11/2017 due to a flow rate of zero. The HHW consumption also dropped to zero on part of 2/4/2017 as well as 2/9/2017 – 2/16/2017. Both CHW and HHW consumption were estimated by model for the specified dates.

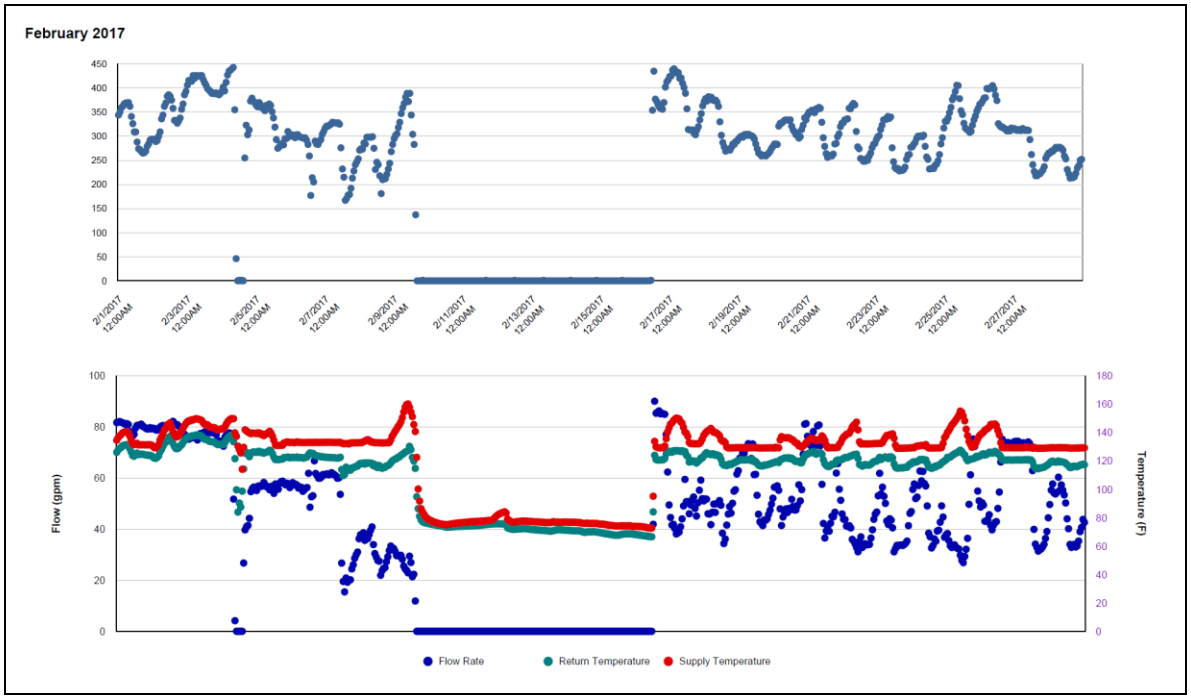
### *Explanatory Figure: 13 months energy balance plot with original data.*



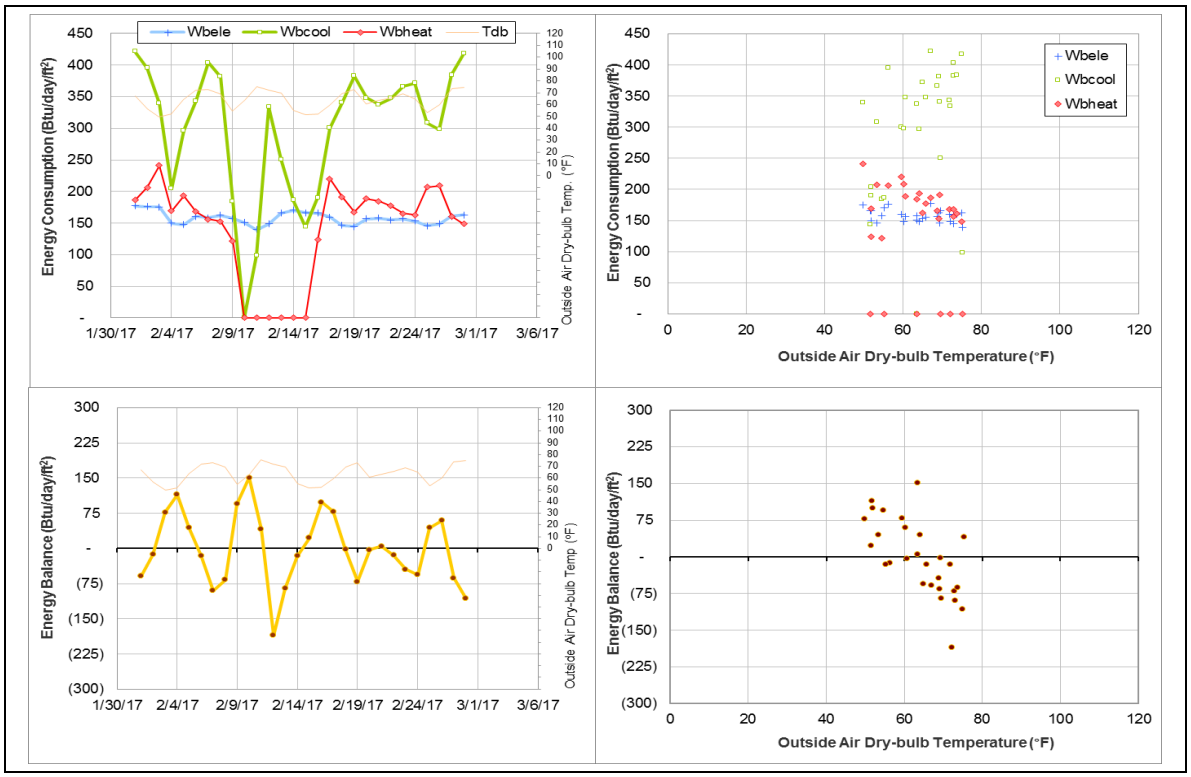
***Explanatory Figure: Time series plots of hourly CHW energy consumption, flow, and supply/return temperatures from utilities office. (February 2017)***



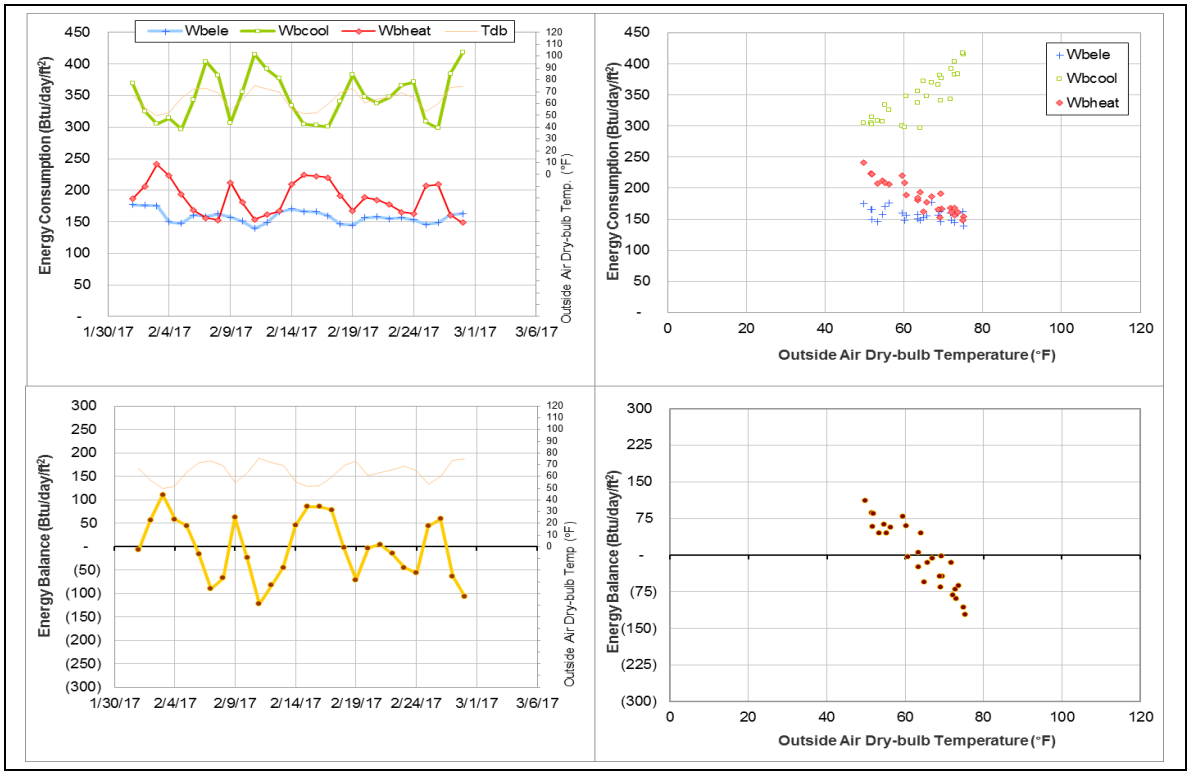

***Explanatory Figure: Time series plots of hourly HHW energy consumption, flow, and supply/return temperatures from utilities office. (February 2017)***



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis***



# All Faiths Chapel (TAMU Bldg #512)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 004288 | 28 | 2/1/2017 – 2/28/2017 | Model |
| HHW | 004293 | 28 | 2/1/2017 – 2/28/2017 | Model |

### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The CHW consumption increased. | 1/12/2017 – 2/28/2017 |
| HHW | The HHW consumption increased. | 12/4/2016 – 12/6/2016<br>12/19/2016 – 2/28/2017 |

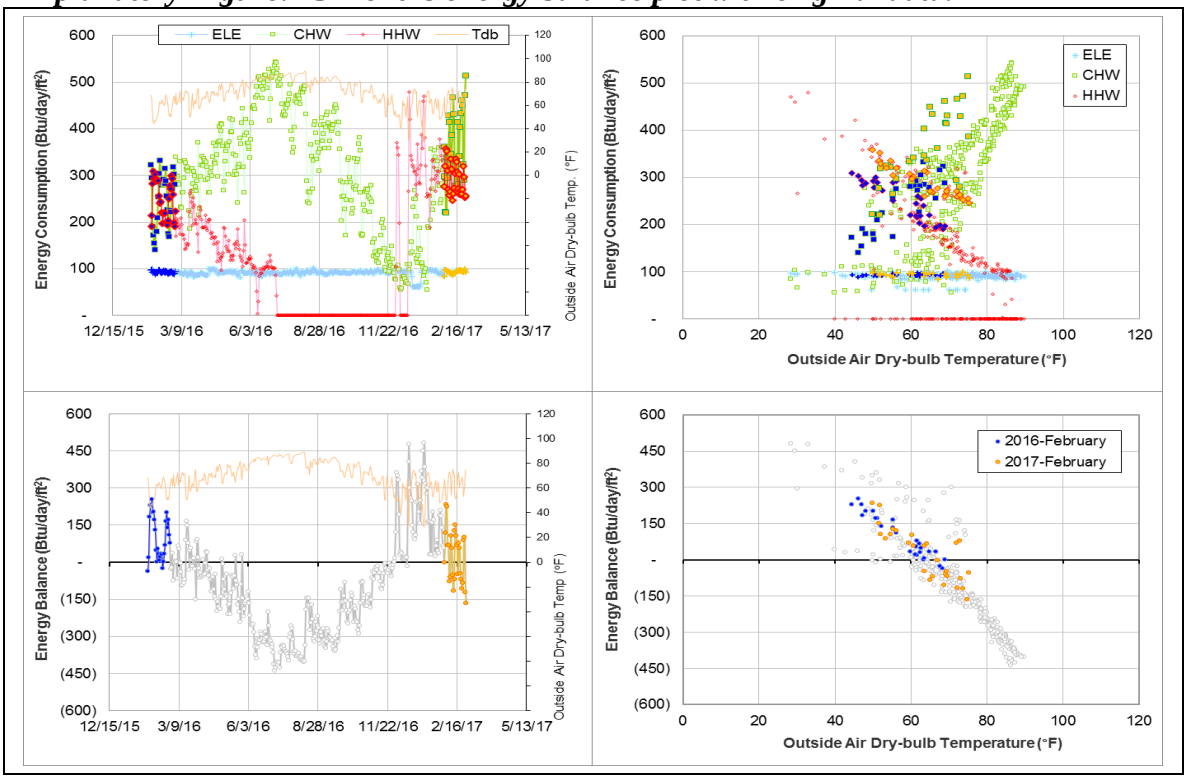
### *Changes in sensor readings related to the detected issues*

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| CHW | 004288 | 1/12/2017 – 2/28/2017 | Delta-T | Sudden increase |
| HHW | 004293 | 12/4/2016 – 12/6/2016<br>12/19/2016 – 2/28/2017 | Flow rate | Increased |

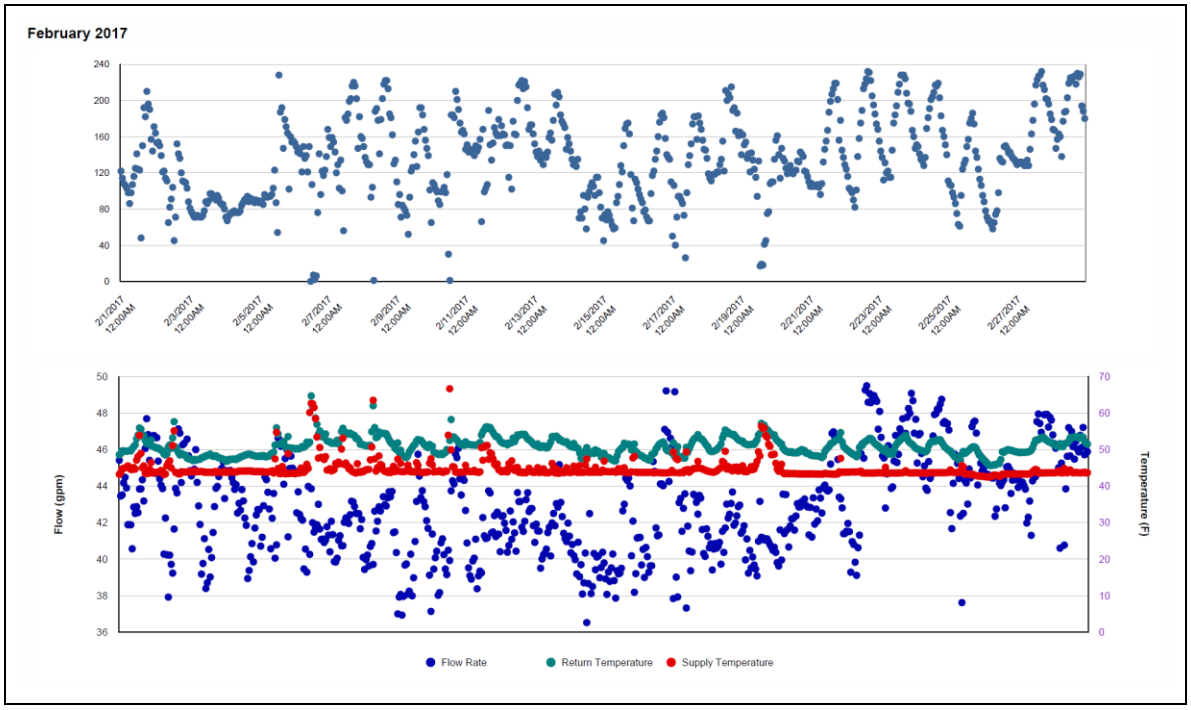
### *Quantitative descriptions and comments*

Starting around 1/12/2017, the CHW delta-T increased. The CHW was estimated by model for this period. From 12/4/2016 – 12/6/2016 and 12/19/2016 – 2/28/2017, the HHW consumption level is higher than the previous trend. The HHW was estimated by model for this period.

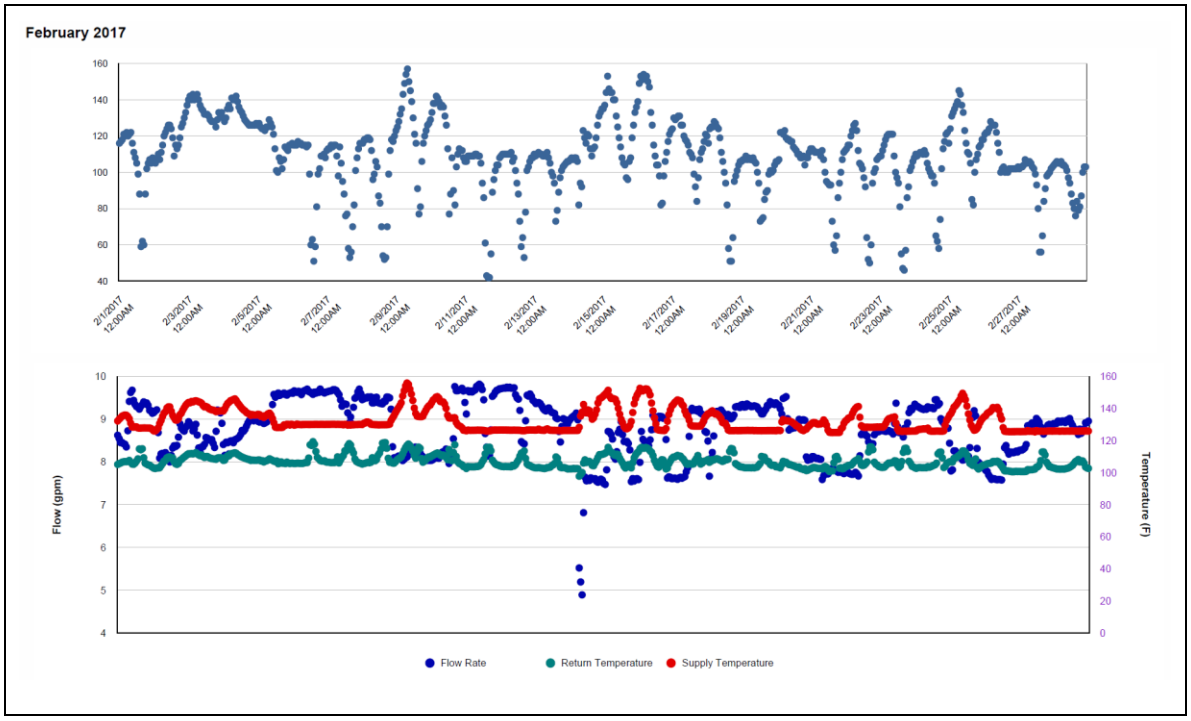
### *Explanatory Figure: 13 months energy balance plot with original data.*



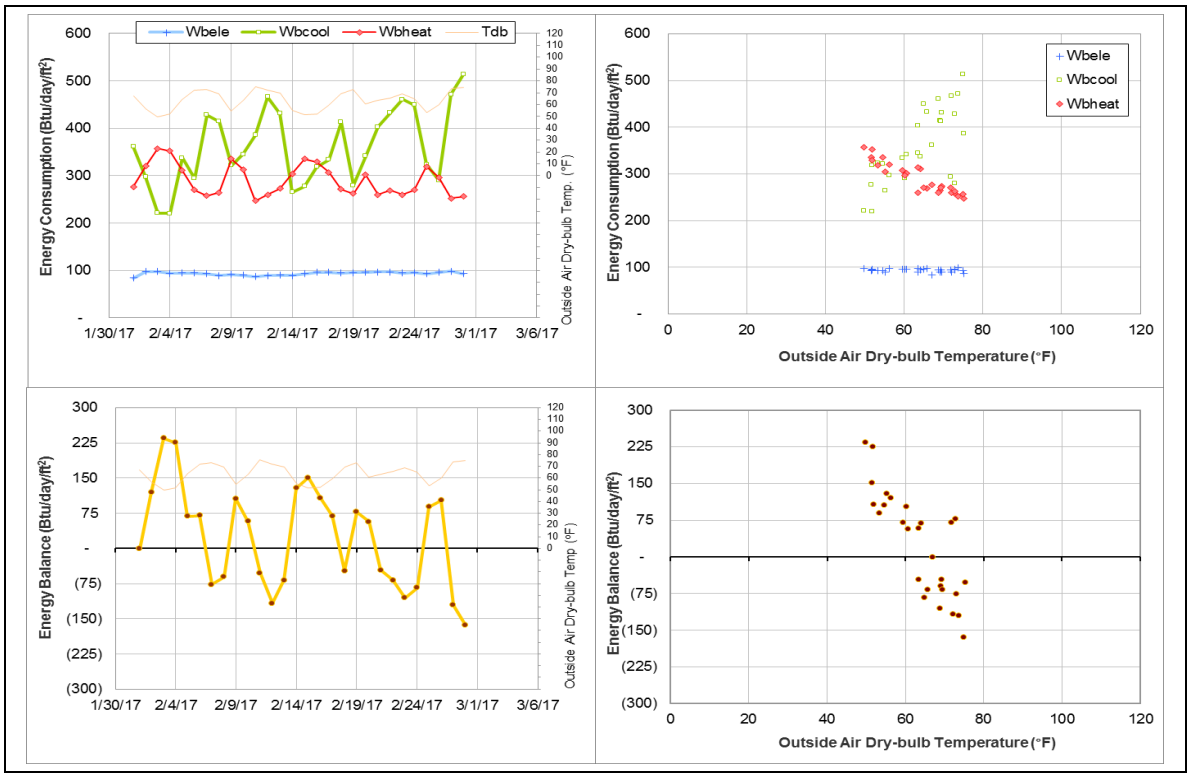
***Explanatory Figure: Time series plots of hourly CHW energy consumption, flow, and supply/return temperatures from utilities office. (February 2017)***



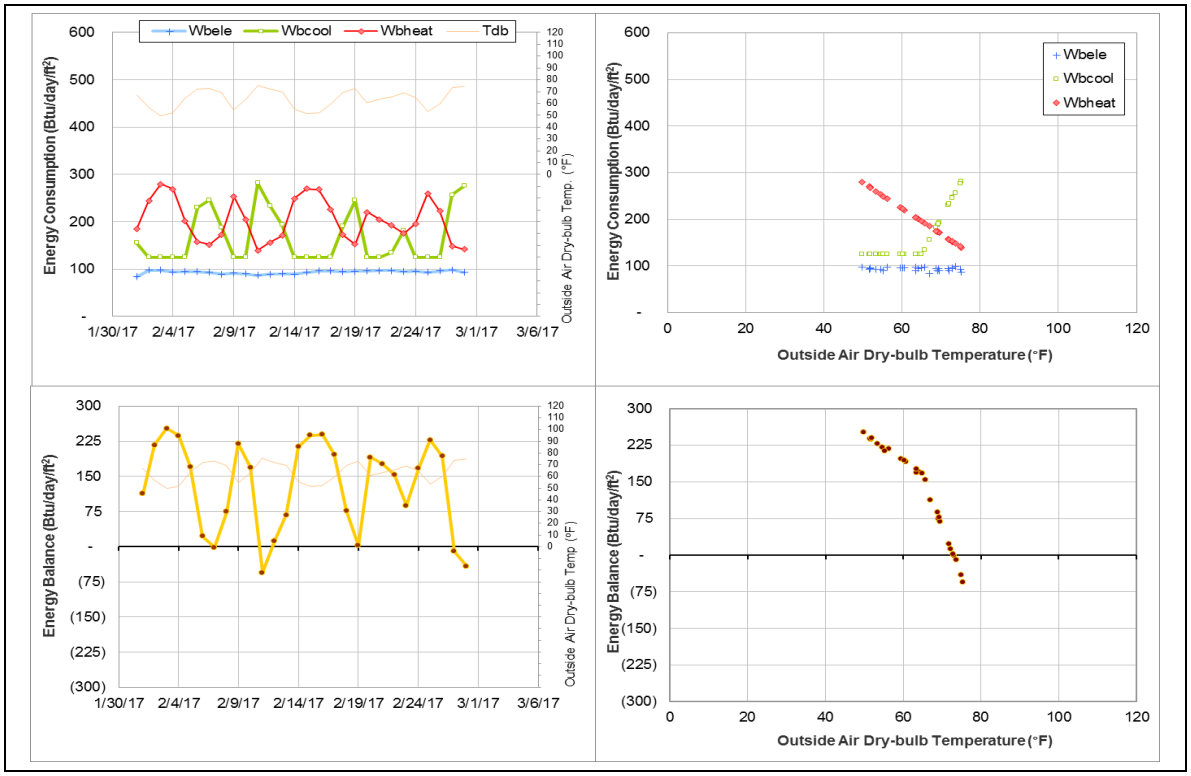

***Explanatory Figure: Time series plots of hourly HHW energy consumption, flow, and supply/return temperatures from utilities office. (February 2017)***



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis***



# McNew Laboratory (TAMU Bldg #740)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 005974 | 28 | 2/1/2017 – 2/28/2017 | Model |
| HHW | 005968 | 28 | 2/1/2017 – 2/28/2017 | Model |

### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The CHW consumption level increased. | 2/1/2017 – 2/28/2017 |
| HHW | The HHW consumption pattern is zero or low. | 5/1/2016– Ongoing |

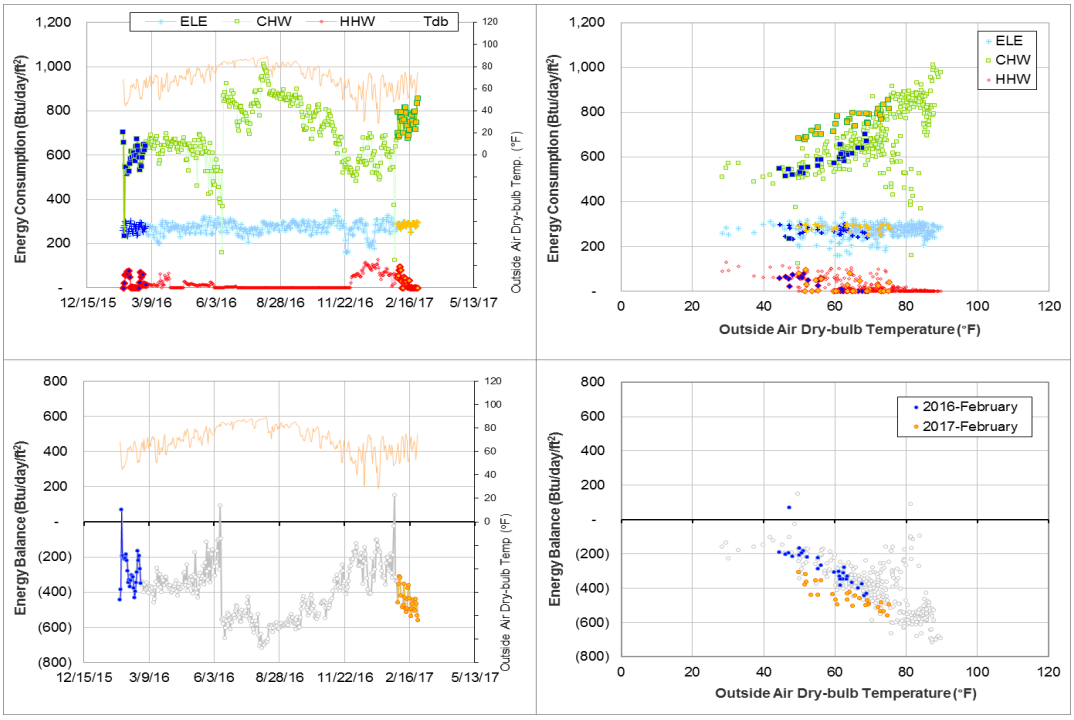
### *Changes in sensor readings related to the detected issues*

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| CHW | 005974 | 2/1/2017 – 2/28/2017 | Delta-T | Increased |
| HHW | 005968 | 5/1/2016 – Ongoing | Flow rate | Decrease to near zero values |

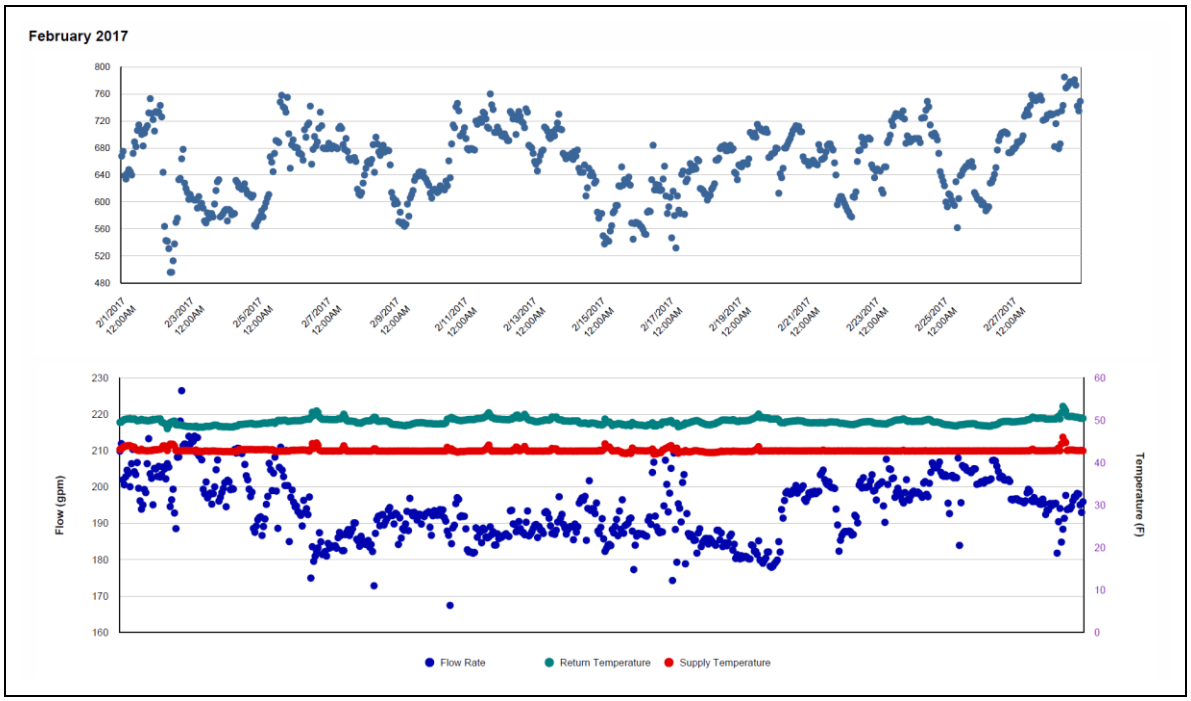
### *Quantitative descriptions and comments*

The CHW consumption level increased by about 150 Btu/day/ft$^2$. The CHW was estimated by model for the month. From May 2016 through November 2016 and several days in February 2017, the HHW consumption has been near zero. Starting December 2016 the HHW consumption increased to a range of 56 – 128 Btu/day/ft$^2$, but this level may still be a little too low. The HHW was estimated by model for the month.

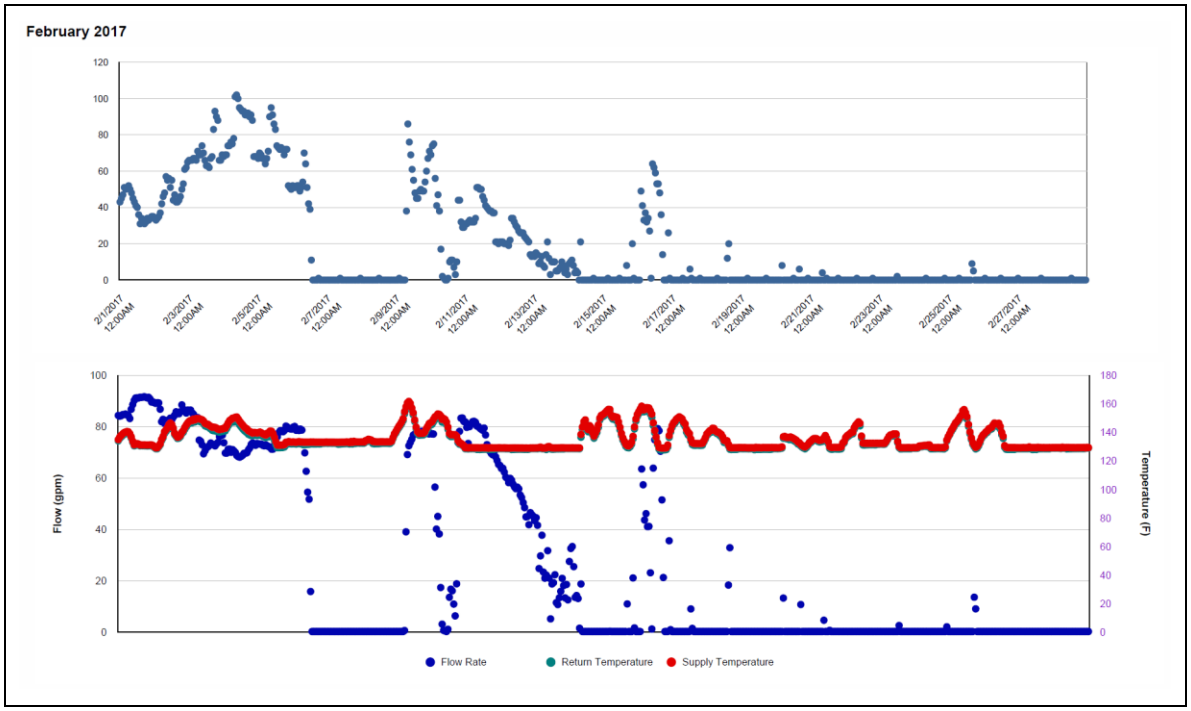
### *Explanatory Figure: 13 months energy balance plot with original data*



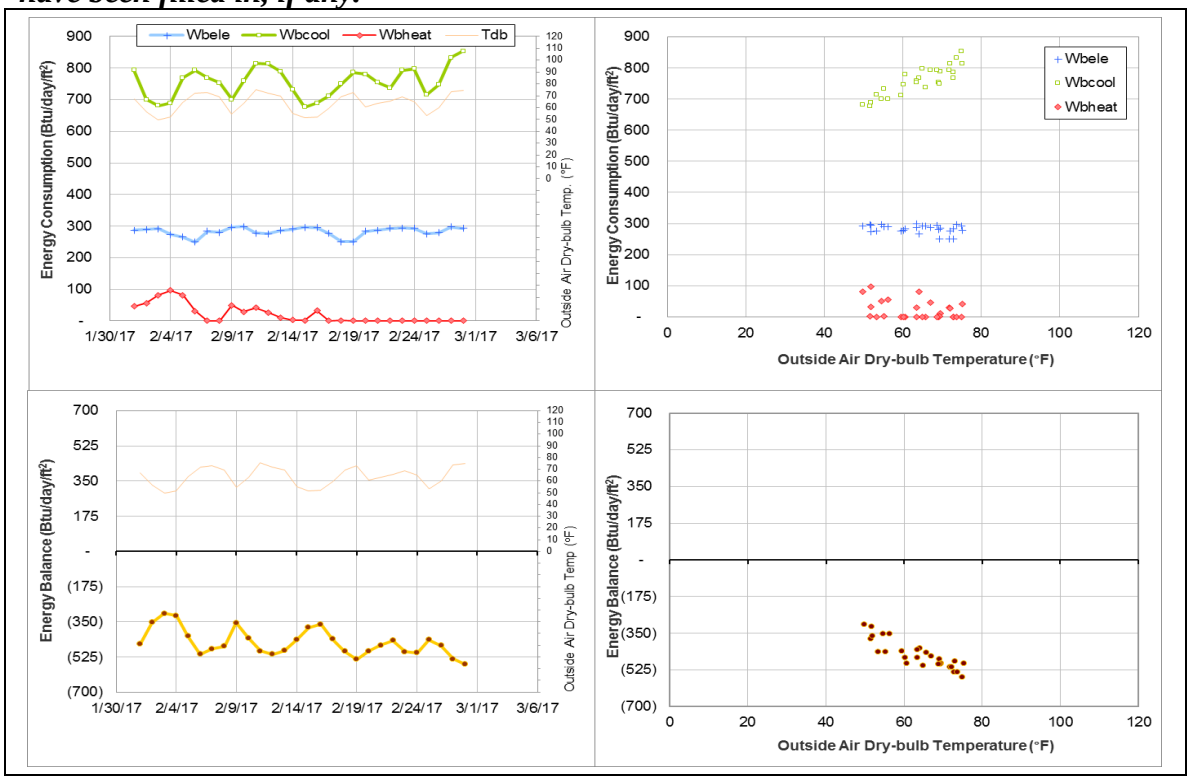
***Explanatory Figure: Time series plots of hourly CHW energy consumption, flow rate, and supply and return temperatures from utilities office. (February 2017)***



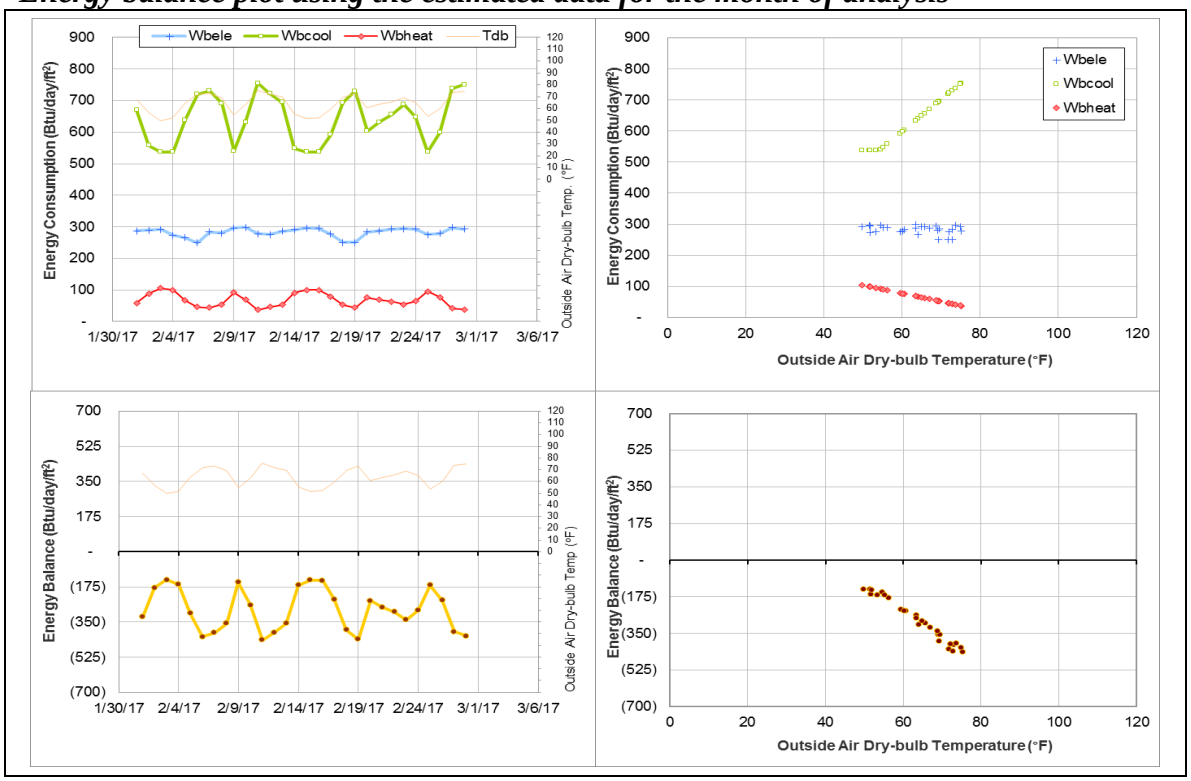

***Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from utilities office. (February 2017)***



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis***



# Entomology Research Lab (TAMU Bldg #815)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| ELE | 005799 | 27 | 2/2/2017 – 2/28/2017 | Model |

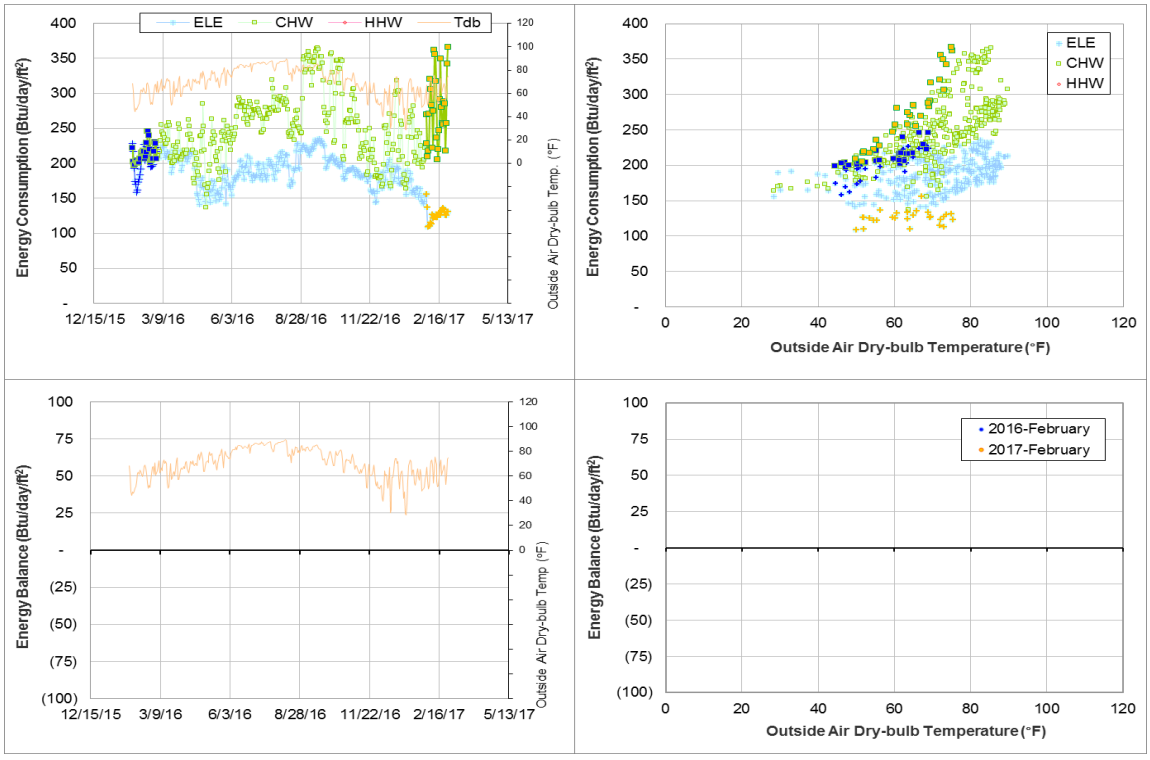
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| ELE | The consumption level has decreased suddenly. | 2/2/2017 – 2/28/2017 |

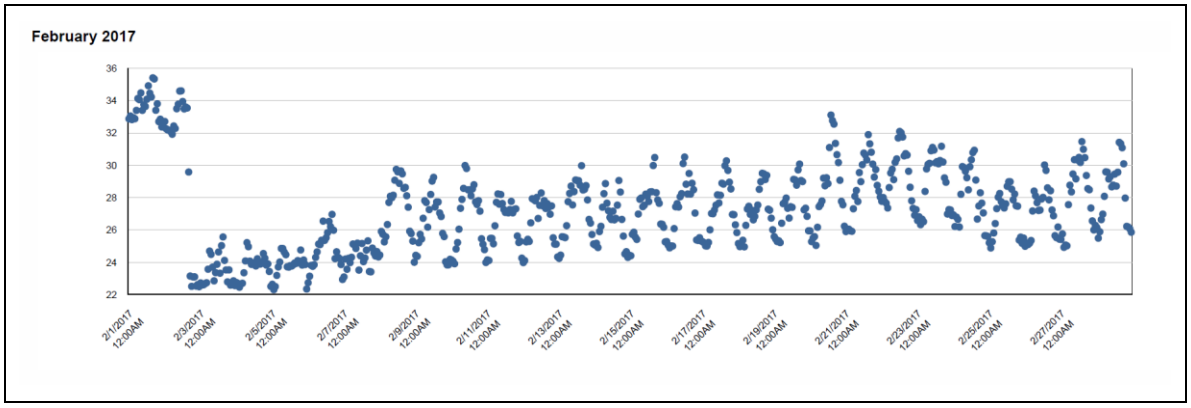
### *Quantitative descriptions and comments*

The ELE consumption level suddenly dropped on 2/2/2017 by approximately 10 kWh/h (~30%).

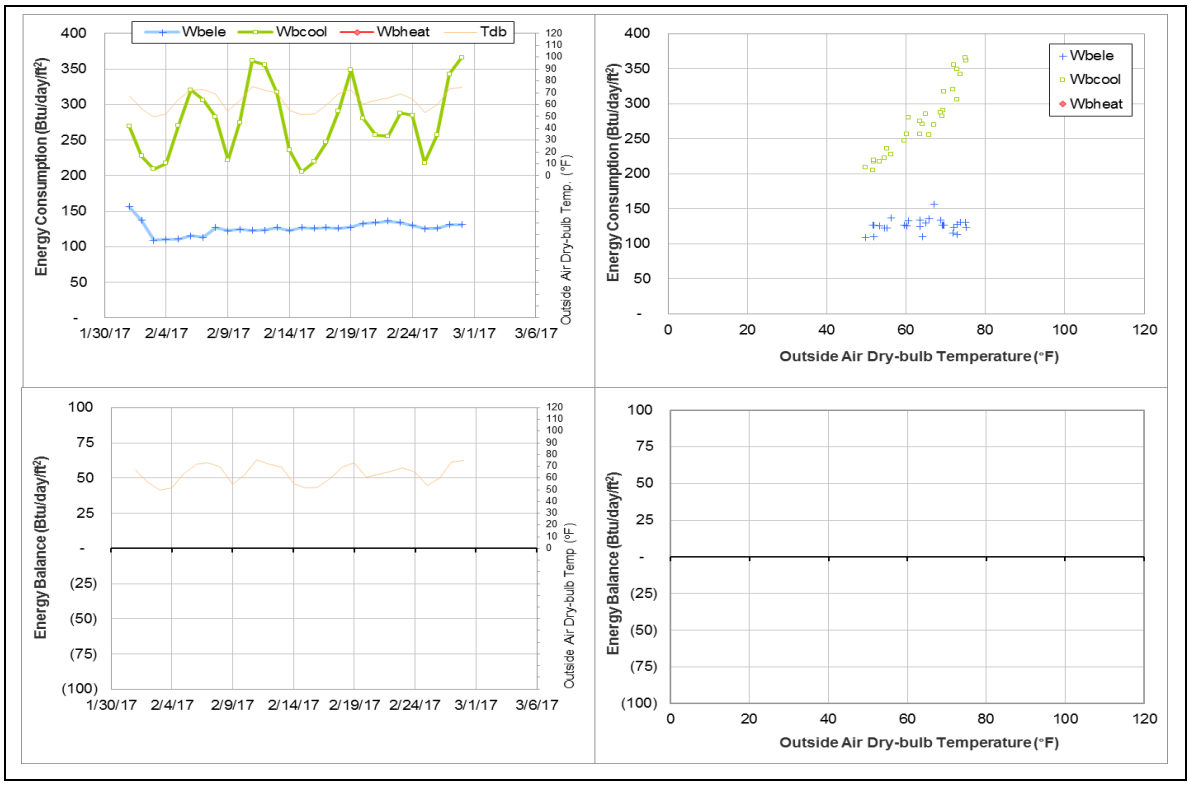
### *Explanatory Figure: 13 months energy balance plot with original data.*



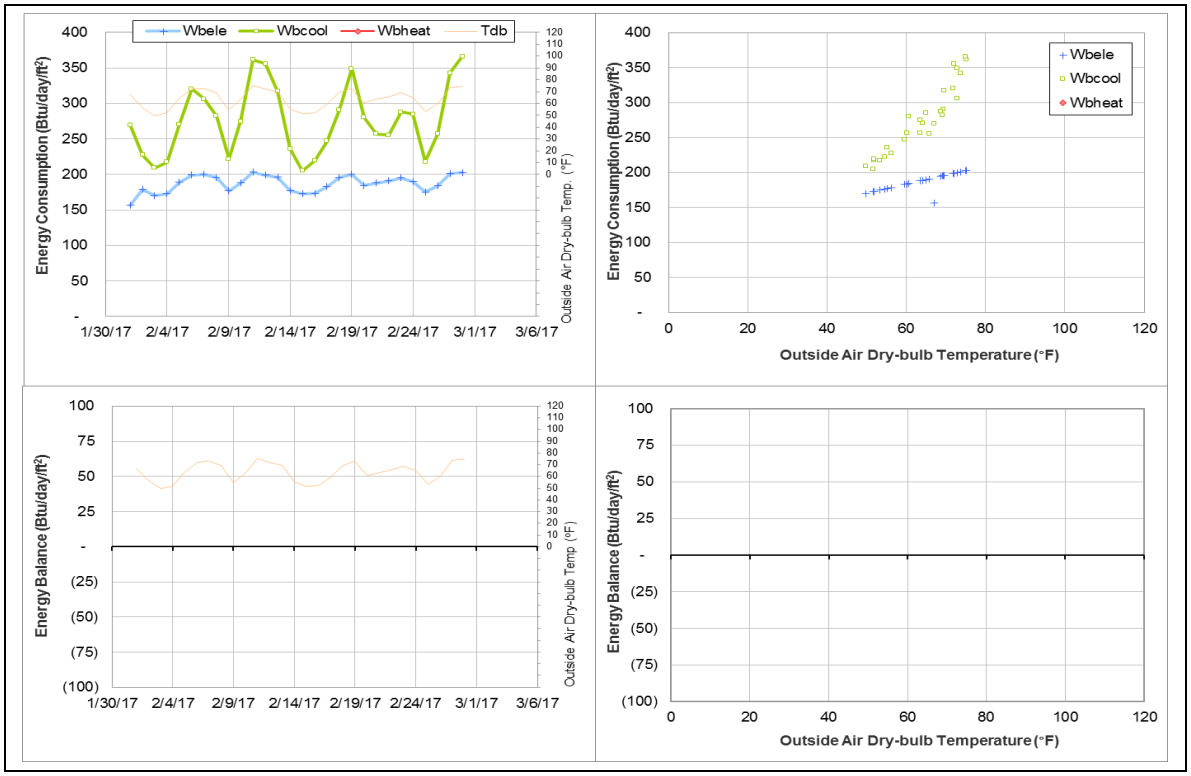
***Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (ELE during February 2017)***



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis***



# Vivarium III (TAMU Bldg #1020)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 005997 | 28 | 2/1/2017 – 2/28/2017 | Model |
| HHW | 006001 | 28 | 2/1/2017 – 2/28/2017 | Model |

### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The CHW consumption pattern level has increased and flattened out at cooler temperatures. | 1/14/2016 – Ongoing |
| HHW | The HHW consumption is too low. | 12/1/2015 – Ongoing |
| Energy Balance | The energy balance is too low. | 12/1/2015 – Ongoing |

### *Changes in sensor readings related to the detected issues*

| Energy Type | Meter ID | Period | Type | Description |
|---|---|---|---|---|
| CHW | 005997 | 12/1/2016 – Ongoing | Delta-T | Increased |
| HHW | 006001 | 12/1/2015 – Ongoing | Flow rate | Periods of near zero |

### *Quantitative descriptions and comments*

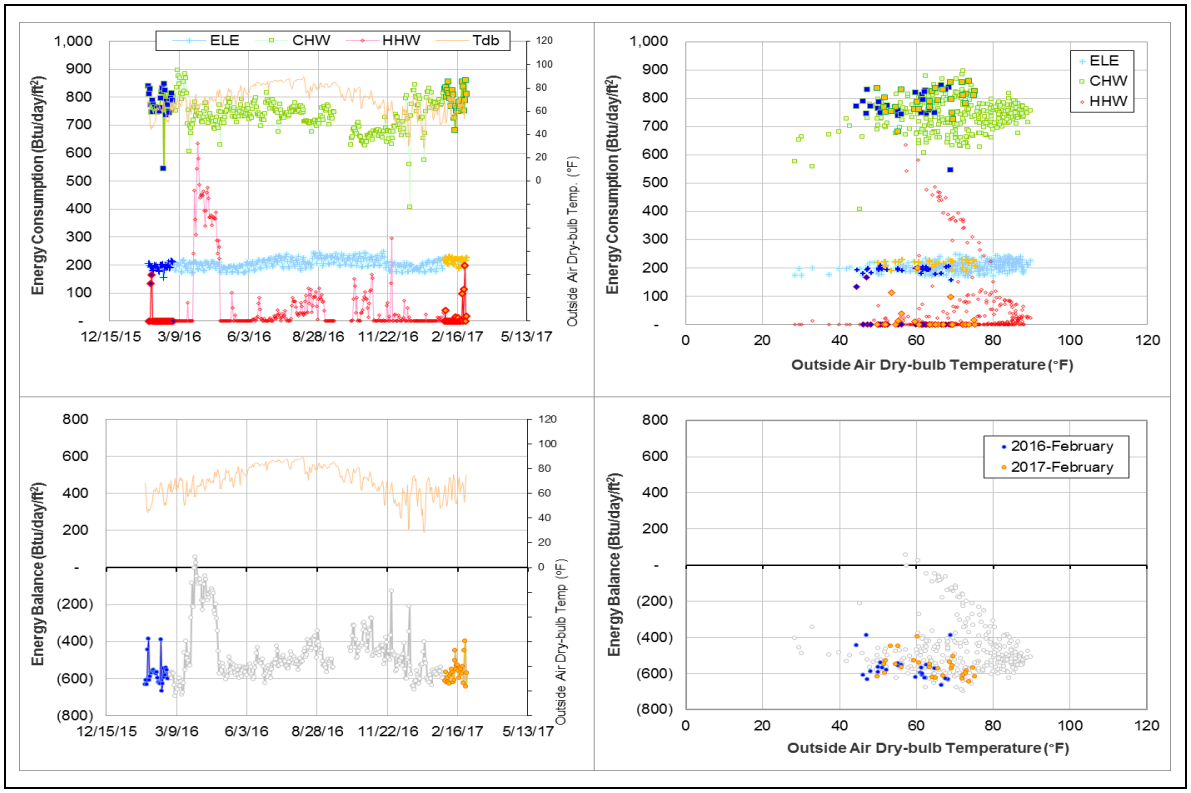
The CHW consumption pattern has increased and flattened out at cooler temperatures starting 1/14/2016. On this day, the CHW Delta-T increased and continues to remain at this higher value. This appears to be a long-term issue resulting in CHW estimates since January 2016 with the exception of the summer period June 2016 – August 2016.

In addition, the HHW consumption is lower than expected for this building. The flow rate is near zero for most of the month. This has been a long-term issue over the past 14 months resulting in HHW estimates. The exceptions being May, which had a flow rate range of 25-65 gpm, and the summer period of June 2016 – August 2016, where we would expect low consumption.

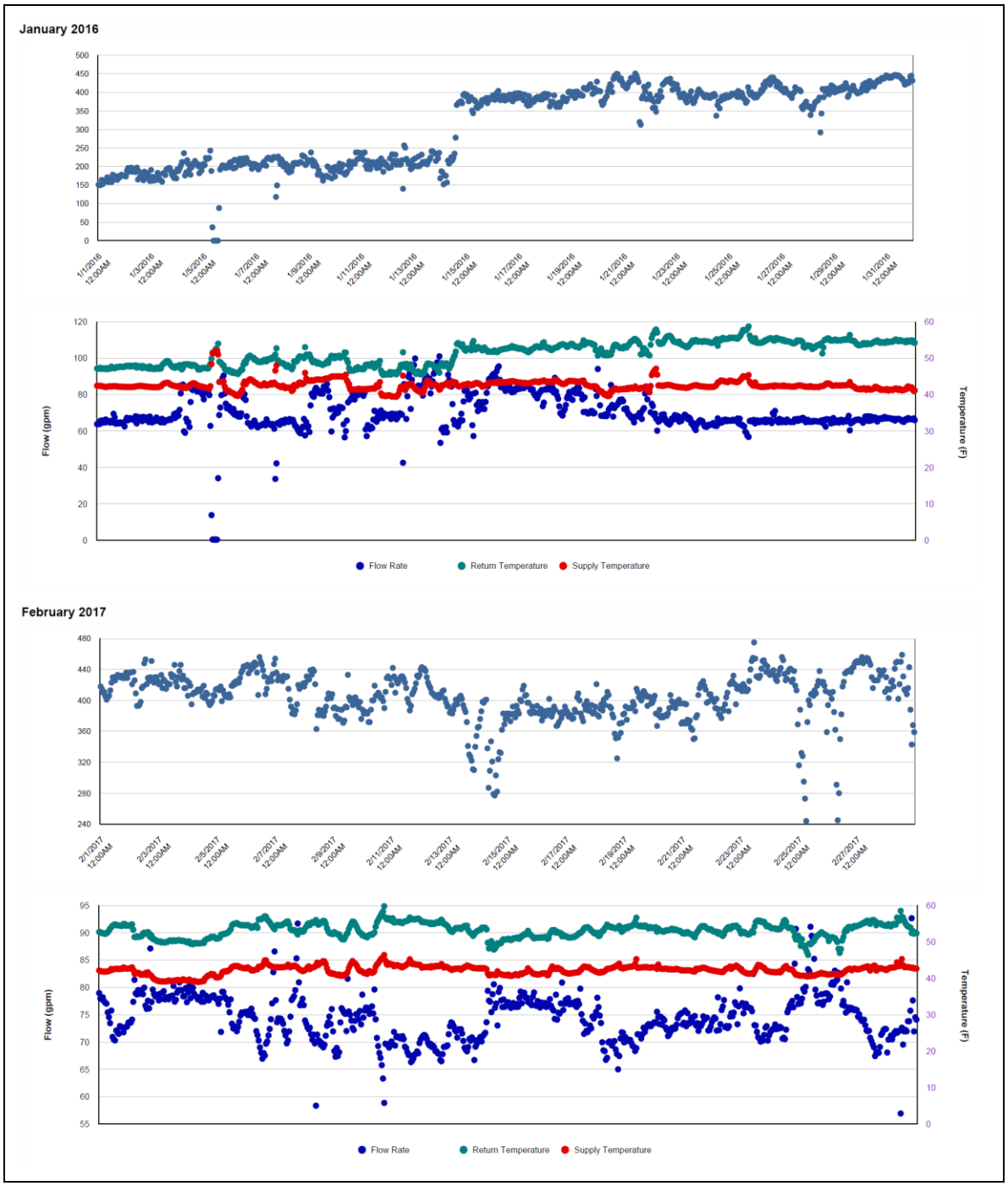
The resulting energy balance with the high CHW consumption and low HHW consumption is too low and does not reach a zero balance at any outside temperature.

Both CHW and HHW consumption for the current month were estimated using a model.

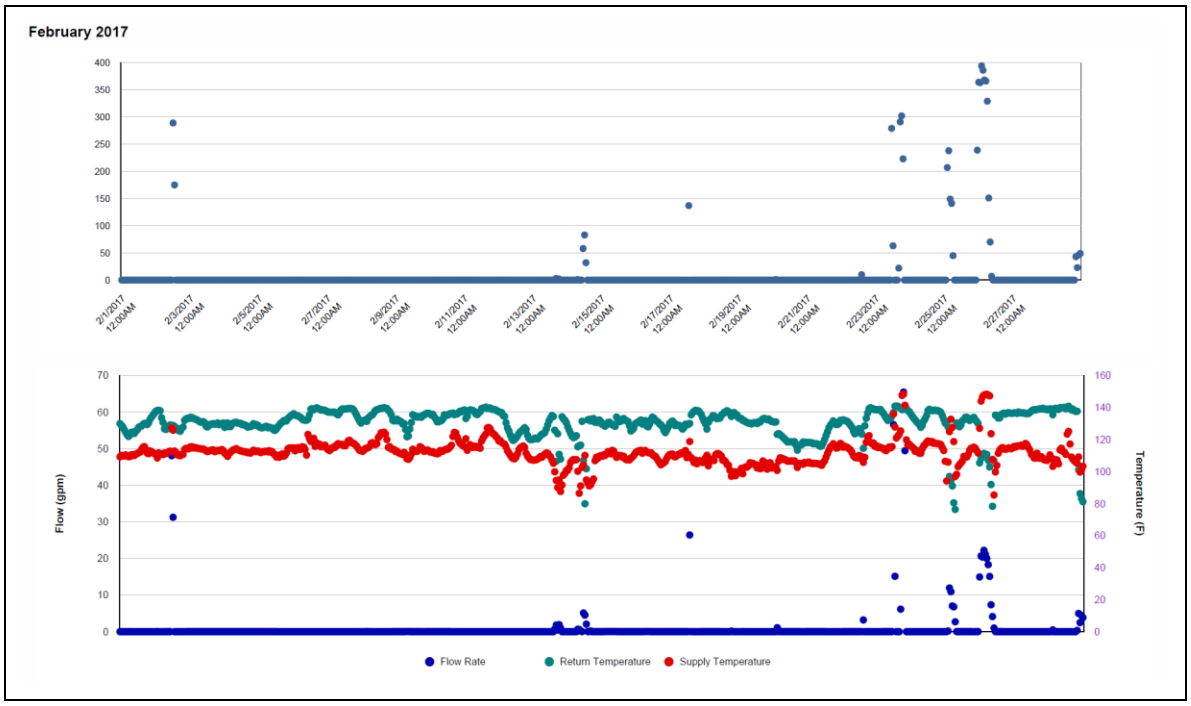
***Explanatory Figure: 13 months energy balance plot with original data***



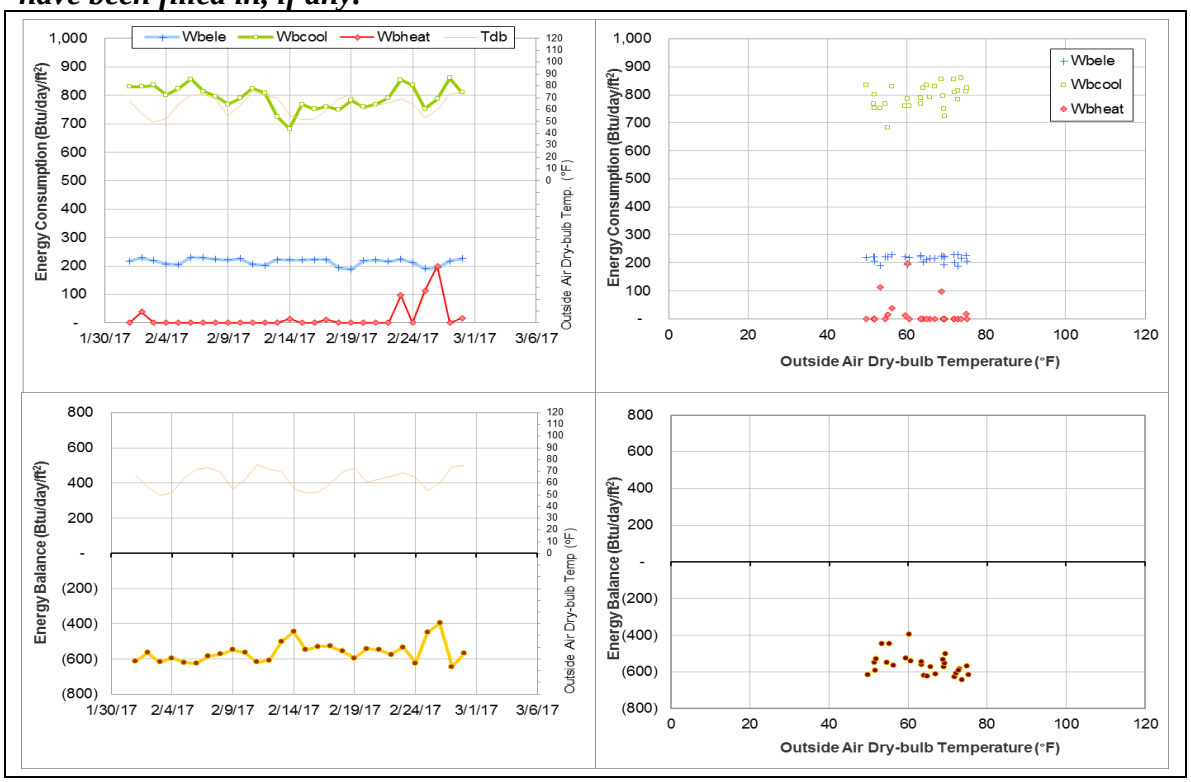
***Explanatory Figure: Time series plots of hourly CHW energy consumption, flow rate, and supply and return temperatures from utilities office. (top: January 2016, bottom: February 2017)***



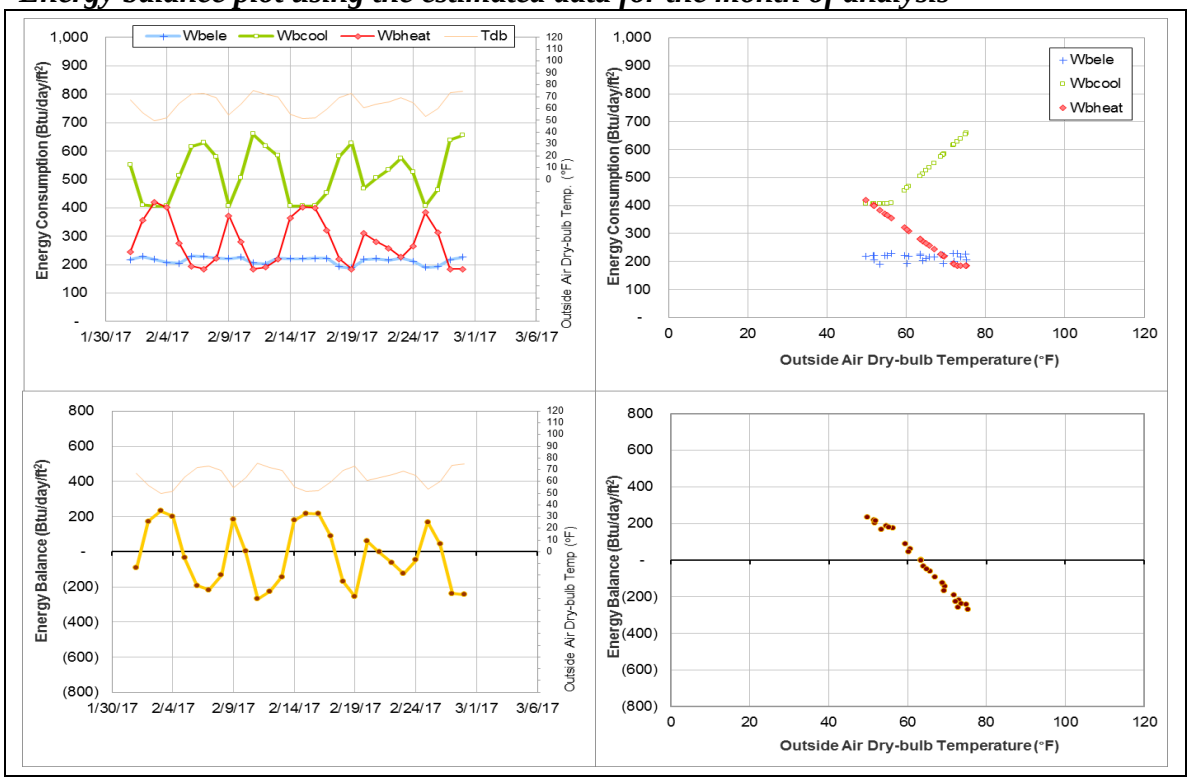
***Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from utilities office. (February 2017)***



***Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.***




***Energy balance plot using the estimated data for the month of analysis***



# Southern Crop Improvement Greenhouse (TAMU Bldg #1512)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| ELE | 005931 | 28 | 2/1/2017 – 2/28/2017 | Model |

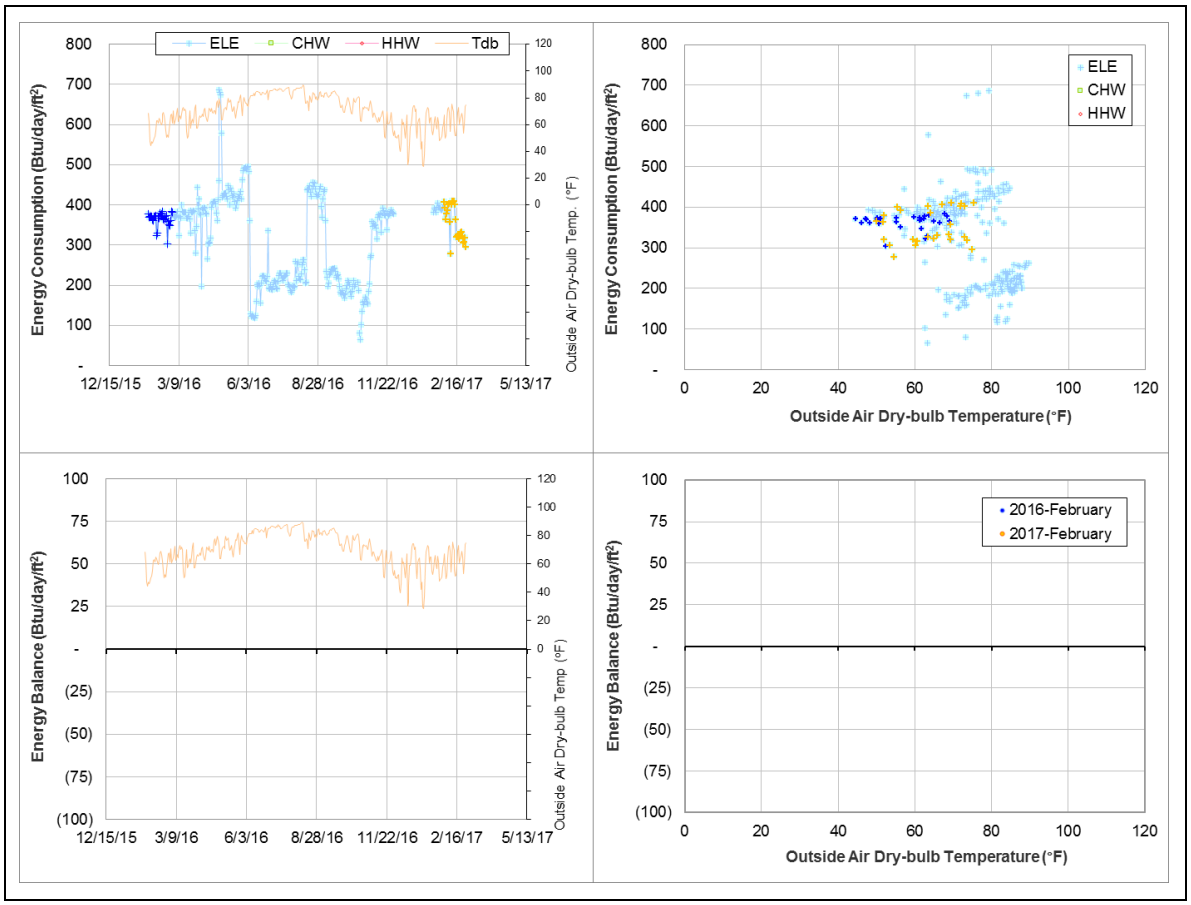
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| ELE | The ELE consumption increased. | 1/19/2017 – Ongoing |

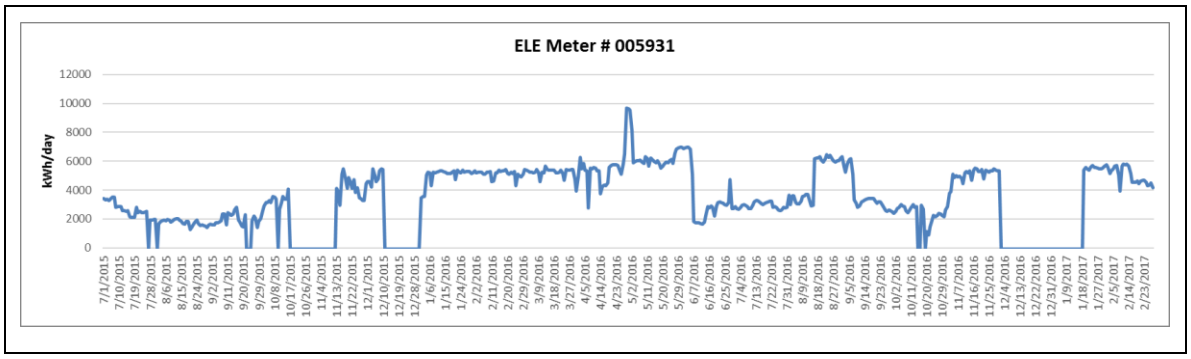
### *Quantitative descriptions and comments*

The ELE consumption level has changed frequently since July 2015 as shown in the time series plot below (see explanatory figure). During the period of 2/1/2017 – 2/28/2017 it increased to the higher consumption pattern. The ELE consumption was estimated for this period using a model based on data during 7/1/2014 – 6/30/2015 when the consumption was stable.

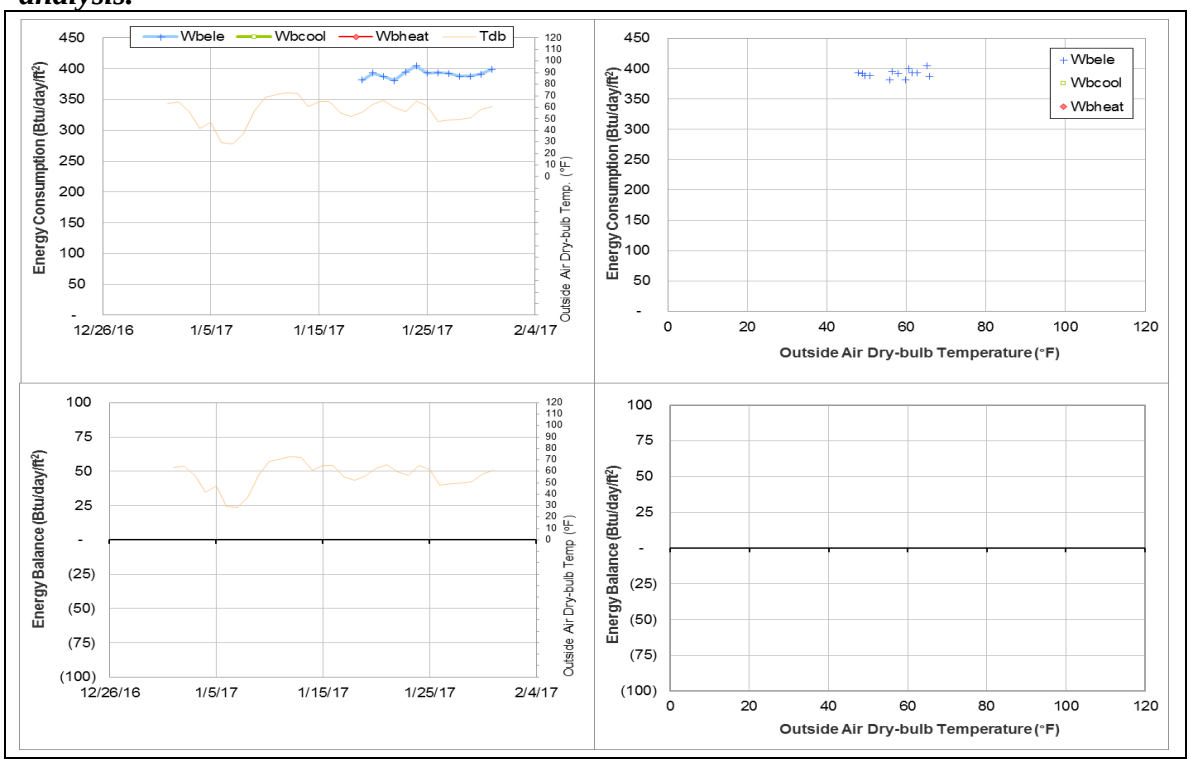
### *Explanatory Figure: 13 months energy balance plot with original data*



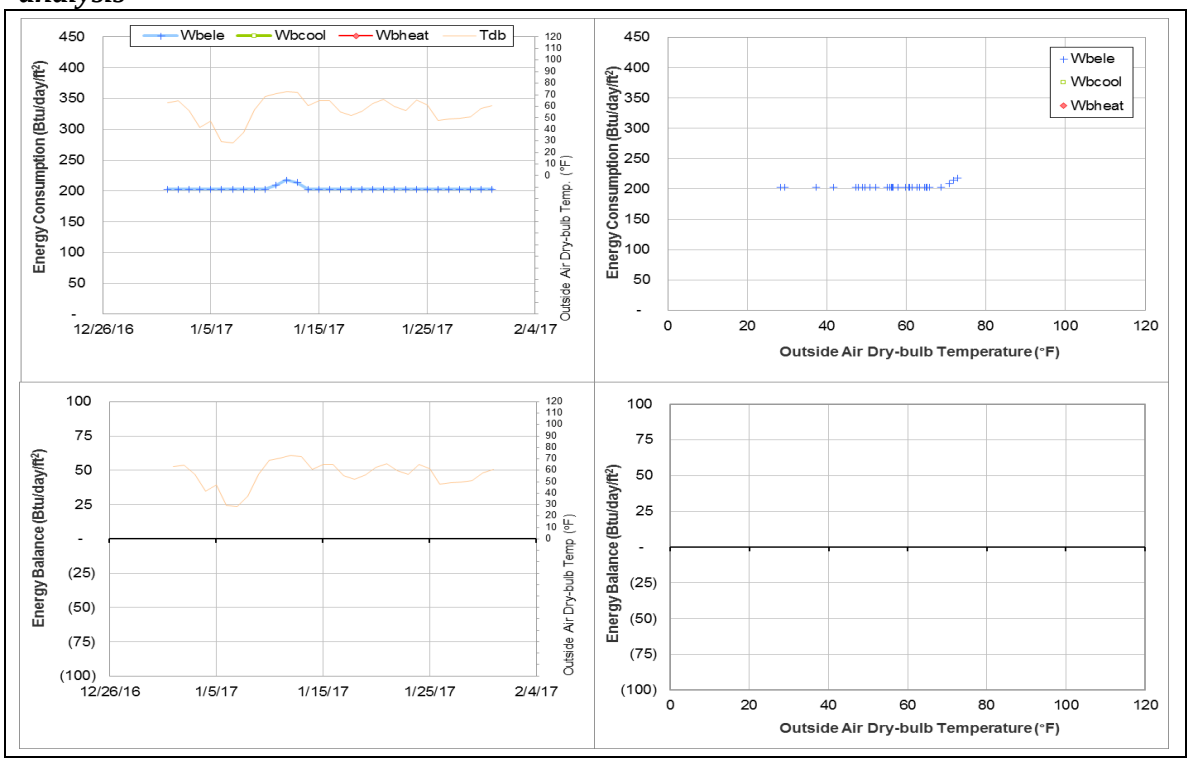
***Explanatory Figure: Time series plot using ELE meter #005931 for 7/1/2015 – 2/28/2017. Note the several changes in electricity pattern over the period.***



***Energy balance plot using the original ELE, CHW and HHW data for the month of analysis.***




***Energy balance plot using the estimated ELE, CHW and HHW data for the month of analysis***



# TX School of Rural Public Health (TAMU Bldg # 1518, 1519, 1520)

## *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| ELE | 005274 | 28 | 2/1/2017 – 2/28/2017 | Switch with 005275 |
| ELE | 005275 | 28 | 2/1/2017 – 2/28/2017 | Switch with 005274 |

## *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| ELE (005274) | The consumption level increased largely. | 8/14/2015 - ongoing |
| ELE (005275) | The consumption level decreased largely. | 8/14/2015 - ongoing |

## *Comments*

ELE meter ID# 005274 serves TX School of Rural Public Health B and ELE meter ID# 005275 is for TX School of Rural Public Health C.

The ELE consumption levels for these two meters had a sudden change on 8/14/2015. The consumption level for meter ID# 005274 increased by approximate 80 kWh/h (~ 100%) and the consumption level for meter ID# 005275 decreased by around 80 kWh/h (~50%). The change observed on 8/14/2016 12:00 AM (see below explanatory figure) suggests that the two meters were switched and may need to be investigated.

## *Explanatory Figure: The time series plot of hourly electricity consumption for two ELE meters #005274 and# 005275*

| Time | Cumulative reading | Hourly Consumption | MeterID | | Time | Cumulative reading | Hourly Consumption | MeterID |
|---|---|---|---|---|---|---|---|---|
| 08/13/2015 12:00:00 PM | 2930884.013 | 84.262 | 005274 | | 08/13/2015 12:00:00 PM | 4741958.002 | 170.658 | 005275 |
| 08/13/2015 01:00:00 PM | 2930968.589 | 84.576 | 005274 | | 08/13/2015 01:00:00 PM | 4742132.336 | 174.334 | 005275 |
| 08/13/2015 02:00:00 PM | 2931051.959 | 83.37 | 005274 | | 08/13/2015 02:00:00 PM | 4742303.554 | 171.218 | 005275 |
| 08/13/2015 03:00:00 PM | 2931146.799 | 94.84 | 005274 | | 08/13/2015 03:00:00 PM | 4742483.683 | 180.129 | 005275 |
| 08/13/2015 04:00:00 PM | 2931240.505 | 93.706 | 005274 | | 08/13/2015 04:00:00 PM | 4742662.753 | 179.07 | 005275 |
| 08/13/2015 05:00:00 PM | 2931324.169 | 83.664 | 005274 | | 08/13/2015 05:00:00 PM | 4742832.009 | 169.256 | 005275 |
| 08/13/2015 06:00:00 PM | 2931399.91 | 75.741 | 005274 | | 08/13/2015 06:00:00 PM | 4742993.53 | 161.521 | 005275 |
| 08/13/2015 07:00:00 PM | 2931472.181 | 72.271 | 005274 | | 08/13/2015 07:00:00 PM | 4743149.675 | 156.145 | 005275 |
| 08/13/2015 08:00:00 PM | 2931543.838 | 71.657 | 005274 | | 08/13/2015 08:00:00 PM | 4743305.9 | 156.225 | 005275 |
| 08/13/2015 09:00:00 PM | 2931613.306 | 69.468 | 005274 | | 08/13/2015 09:00:00 PM | 4743462.097 | 156.197 | 005275 |
| 08/13/2015 10:00:00 PM | 2931672.706 | 59.4 | 005274 | | 08/13/2015 10:00:00 PM | 4743610.221 | 148.124 | 005275 |
| 08/13/2015 11:00:00 PM | 2931733.072 | 60.366 | 005274 | | 08/13/2015 11:00:00 PM | 4743745.645 | 135.424 | 005275 |
| 08/14/2015 12:00:00 AM | 4743876.03 | 130.385 | 005274 | | 08/14/2015 12:00:00 AM | 2931791.19 | 58.118 | 005275 |
| 08/14/2015 01:00:00 AM | 4744008.406 | 132.376 | 005274 | | 08/14/2015 01:00:00 AM | 2931849.35 | 58.16 | 005275 |
| 08/14/2015 02:00:00 AM | 4744141.74 | 133.334 | 005274 | | 08/14/2015 02:00:00 AM | 2931908.534 | 59.184 | 005275 |
| 08/14/2015 03:00:00 AM | 4744272.553 | 130.813 | 005274 | | 08/14/2015 03:00:00 AM | 2931966.686 | 58.152 | 005275 |
| 08/14/2015 04:00:00 AM | 4744404.045 | 131.492 | 005274 | | 08/14/2015 04:00:00 AM | 2932023.589 | 56.903 | 005275 |
| 08/14/2015 05:00:00 AM | 4744534.38 | 130.335 | 005274 | | 08/14/2015 05:00:00 AM | 2932080.05 | 56.461 | 005275 |
| 08/14/2015 06:00:00 AM | 4744667.111 | 132.731 | 005274 | | 08/14/2015 06:00:00 AM | 2932137.05 | 57 | 005275 |
| 08/14/2015 07:00:00 AM | 4744820.038 | 152.927 | 005274 | | 08/14/2015 07:00:00 AM | 2932232.983 | 95.933 | 005275 |
| 08/14/2015 08:00:00 AM | 4744972.221 | 152.183 | 005274 | | 08/14/2015 08:00:00 AM | 2932319.162 | 86.179 | 005275 |
| 08/14/2015 09:00:00 AM | 4745134.467 | 162.246 | 005274 | | 08/14/2015 09:00:00 AM | 2932404.691 | 85.529 | 005275 |
| 08/14/2015 10:00:00 AM | 4745308.905 | 174.438 | 005274 | | 08/14/2015 10:00:00 AM | 2932489.976 | 85.285 | 005275 |
| 08/14/2015 11:00:00 AM | 4745476.832 | 167.927 | 005274 | | 08/14/2015 11:00:00 AM | 2932564.419 | 74.443 | 005275 |
| 08/14/2015 12:00:00 PM | 4745634.44 | 157.608 | 005274 | | 08/14/2015 12:00:00 PM | 2932634.064 | 69.645 | 005275 |
| 08/14/2015 01:00:00 PM | 4745789.345 | 154.905 | 005274 | | 08/14/2015 01:00:00 PM | 2932704.723 | 70.659 | 005275 |
| 08/14/2015 02:00:00 PM | 4745949.369 | 160.024 | 005274 | | 08/14/2015 02:00:00 PM | 2932777.373 | 72.65 | 005275 |
| 08/14/2015 03:00:00 PM | 4746110.346 | 160.977 | 005274 | | 08/14/2015 03:00:00 PM | 2932845.908 | 68.535 | 005275 |
| 08/14/2015 04:00:00 PM | 4746270.903 | 160.557 | 005274 | | 08/14/2015 04:00:00 PM | 2932920.525 | 74.617 | 005275 |
| 08/14/2015 05:00:00 PM | 4746431.347 | 160.444 | 005274 | | 08/14/2015 05:00:00 PM | 2932996.835 | 76.31 | 005275 |
| 08/14/2015 06:00:00 PM | 4746586.415 | 155.068 | 005274 | | 08/14/2015 06:00:00 PM | 2933065.518 | 68.683 | 005275 |
| 08/14/2015 07:00:00 PM | 4746727.476 | 141.061 | 005274 | | 08/14/2015 07:00:00 PM | 2933127.559 | 62.041 | 005275 |
| 08/14/2015 08:00:00 PM | 4746864.372 | 136.896 | 005274 | | 08/14/2015 08:00:00 PM | 2933195.384 | 67.825 | 005275 |
| 08/14/2015 09:00:00 PM | 4747004.372 | 140 | 005274 | | 08/14/2015 09:00:00 PM | 2933263.632 | 68.248 | 005275 |
| 08/14/2015 10:00:00 PM | 4747137.886 | 133.514 | 005274 | | 08/14/2015 10:00:00 PM | 2933323.26 | 59.628 | 005275 |
| 08/14/2015 11:00:00 PM | 4747269.569 | 131.683 | 005274 | | 08/14/2015 11:00:00 PM | 2933382.3 | 59.04 | 005275 |

# Gilchrist TTI Building (TAMU Bldg #1600)

### *Estimated data*

| Energy Type | Meter ID | Number of Days | Period | Estimation Method |
|---|---|---|---|---|
| CHW | 002649 | 7 | 2/2/2017 – 2/8/2017 | Model |
| HHW | 002653 | 7 | 2/2/2017 – 2/8/2017 | Model |

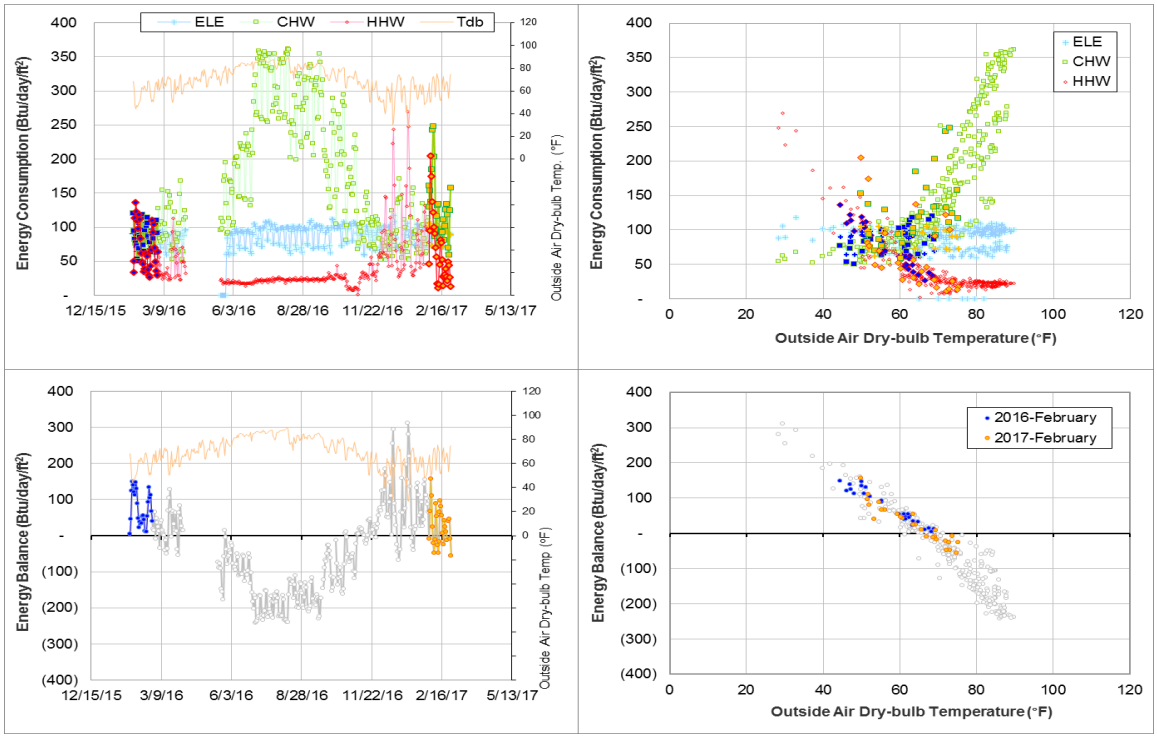
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The CHW consumption increased for a short period. | 2/2/2017 – 2/8/2017 |
| HHW | The HHW consumption increased for a short period. | 2/2/2017 – 2/8/2017 |

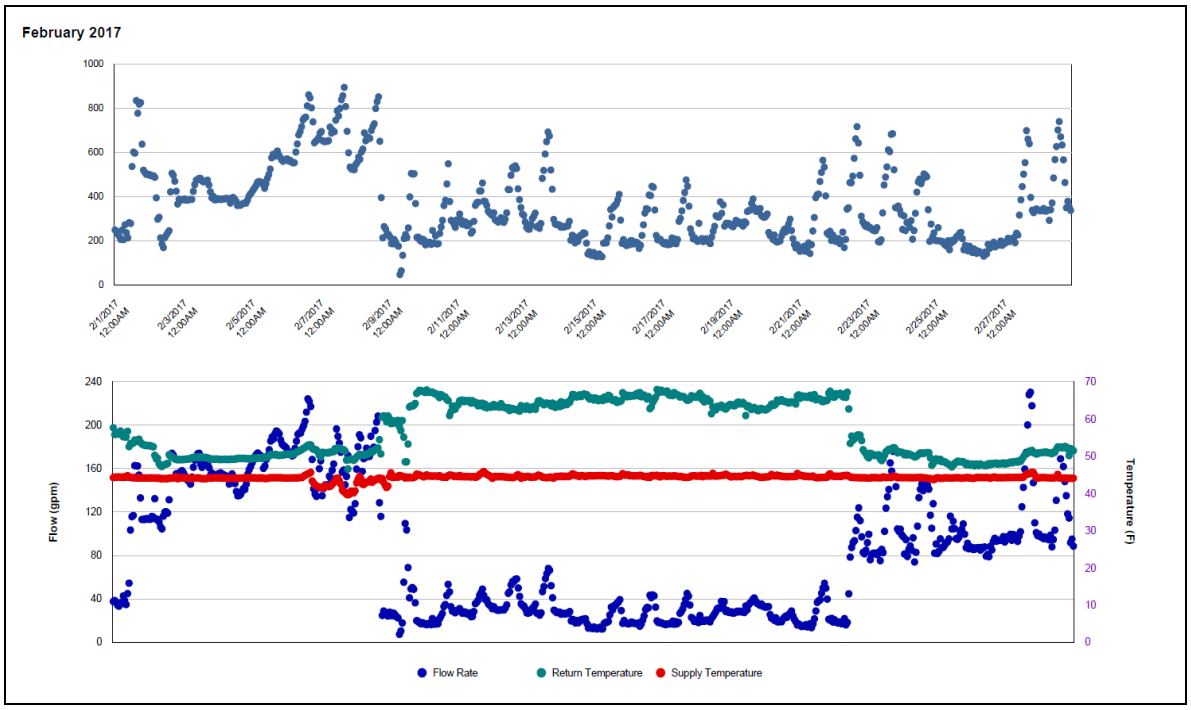
### *Quantitative descriptions and comments*

Both the CHW and HHW consumption increased for the period 2/2/2017 – 2/8/2017 due to an increase in flow rate. The consumption was estimated by model for this period.

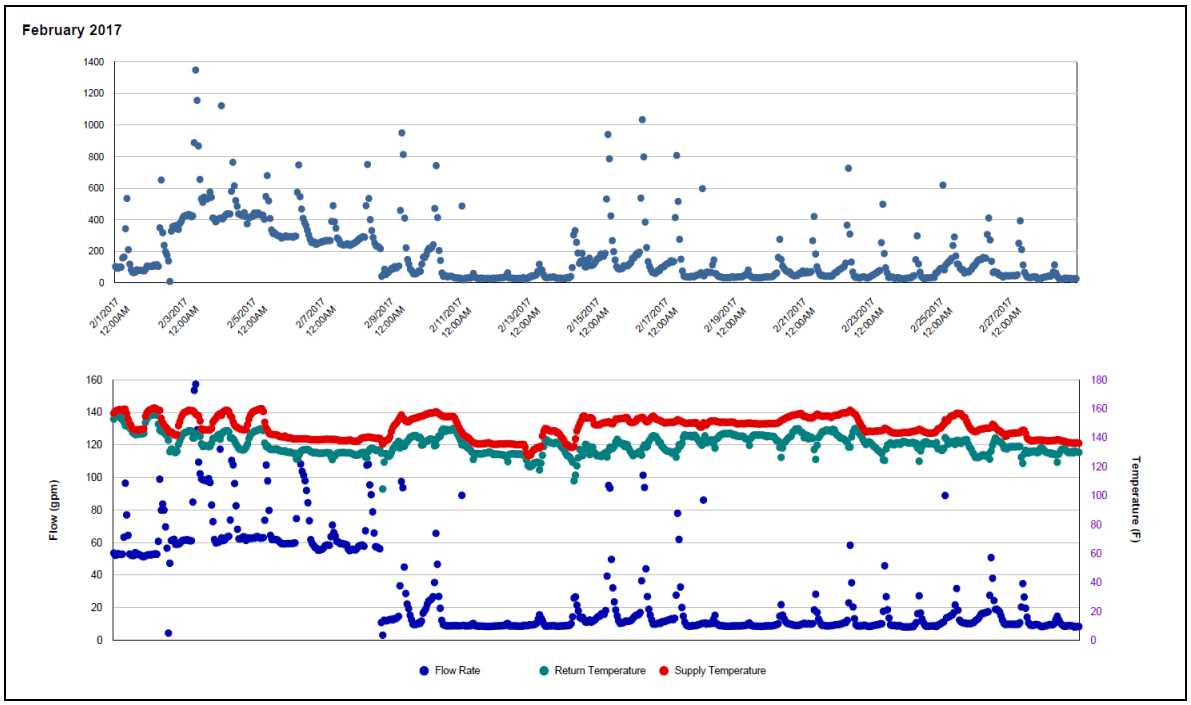
### *Explanatory Figure: 13 months energy balance plot with original data*



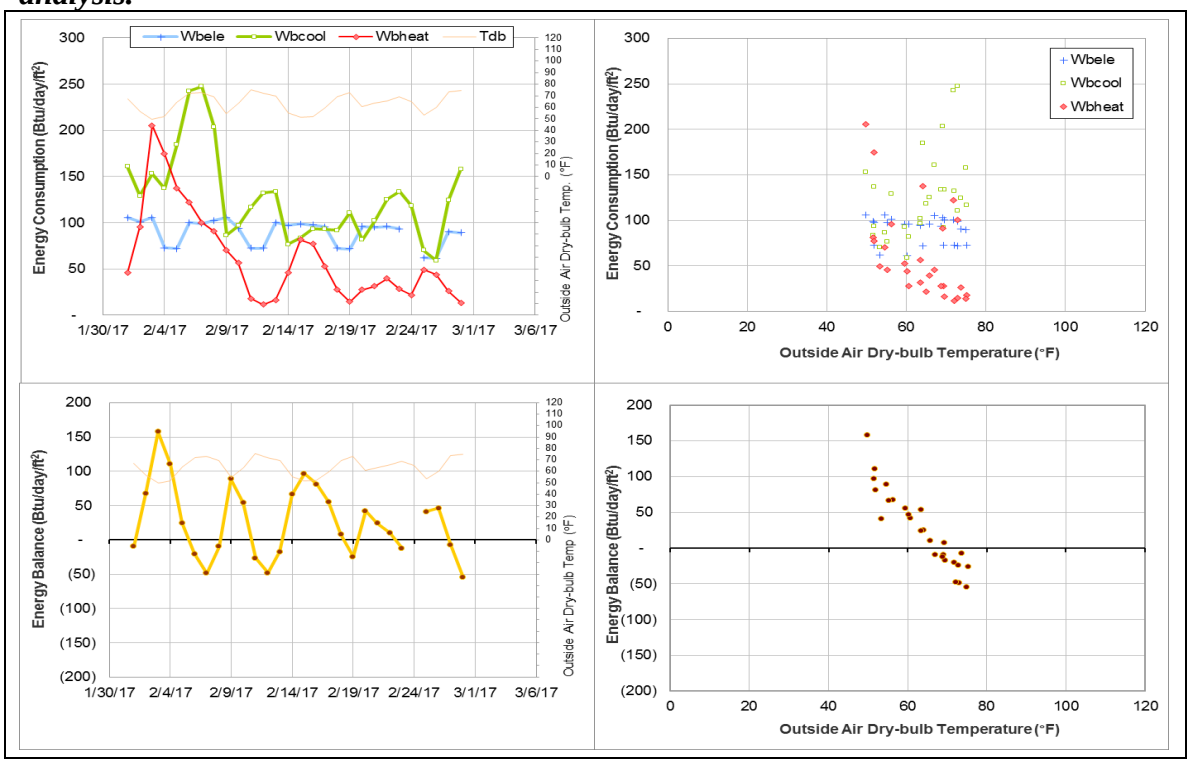
***Explanatory Figure: Time series plots of hourly CHW energy consumption, flow rate, and supply and return temperatures from utilities office. (February 2017)***



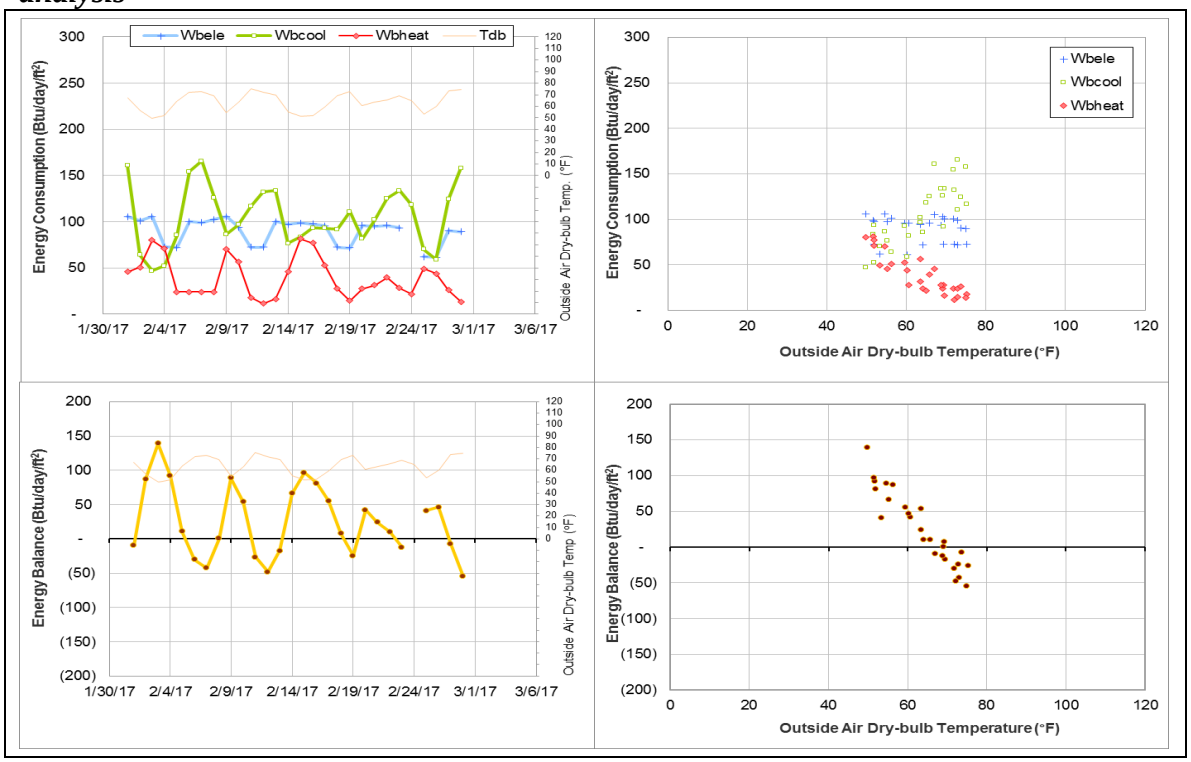

***Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from utilities office. (February 2017)***



***Energy balance plot using the original ELE, CHW and HHW data for the month of analysis.***




***Energy balance plot using the estimated ELE, CHW and HHW data for the month of analysis***



# II-3 Meters with Significant Issues in Energy Consumption Data

In this section, significant issues in the data behavior are described. On the contrary to the section II–2, alternative consumption is not estimated for some reasons: presence of continuous problems since the beginning of the data acquisition, unbalanced energy uses in the past data, changes in the consumption patterns without evidence of data problems, etc. Table II–3 gives a list of meters included in this section.

Table II-3 Meters with significant issues in the consumption data during February 2017

| Building No. | Building Name | MeterID | Type |
|---|---|---|---|
| 0290 | Wells Residence Hall | | |
| | | 001984 | CHW |
| | | 001988 | HHW |
| 0291 | Rudder Residence Hall | | |
| | | 002132 | CHW |
| | | 002136 | HHW |
| 0293 | Appelt Residence Hall | | |
| | | 002062 | CHW |
| | | 002066 | HHW |
| 0353 | Bright Aerospace Building | | |
| | | 002746 | CHW |
| 0398 | Langford Architecture Center Building A | | |
| | | 003951 | CHW |
| | | 003955 | HHW |
| 0419 | Legett Residence Hall | | |
| | | 000031 | ELE |
| | | 002218 | CHW |
| | | 002222 | HHW |
| 0434 | Luedecke Building (Cyclotron) | | |
| | | 005555 | ELE |
| | | 005558 | ELE |
| | | 006664 | CHW |
| | | 006668 | HHW |
| 0433 | Mosher Residence Hall | | |
| | | 009083 | ELE |
| | | 002485 | CHW |
| | | 002489 | HHW |
| 0443 | Oceanography & Meteorology Building | | |
| | | 006388 | CHW |
| | | 006392 | HHW |
| 0445 | Teague Research Center | | |
| | | 006411 | CHW |
| | | 006415 | HHW |
| 0517 | DPC Annex | | |
| | | 006563 | CHW |
| | | 006567 | HHW |
| 0446 | Rudder Theatre Complex | | |
| | | 002977 | ELE |
| | | 002980 | ELE |
| | | 004297 | CHW |
| | | 004309 | HHW |
| 0463 | Psychology Building | | |
| | | 001575 | ELE |
| | | 002941 | CHW |
| | | 002945 | HHW |
| 0482 | Fermier Hall | | |
| | | 005878 | CHW |
| | | 005881 | HHW |
| 0484 | Chemistry Building | | |
| | | 007557 | ELE |
| 0492 | Civil Engineering Building | | |
| | | 005950 | CHW |
| | | 005954 | HHW |
| 0496 | Utilities & Energy Services Central Office | | |
| | | 007706 | ELE |
| | | 006929 | CHW |
| | | 006933 | HHW |
| 0499 | Engineering Innovation Center | | |
| | | 002672 | CHW |
| 0506 | Nagle Hall | | |
| | | 001484 | ELE |
| | | 003619 | CHW |
| | | 003623 | HHW |
| 0512 | All Faiths Chapel | | |
| | | 004288 | CHW |
| 0524 | Blocker Building | | |
| | | 002918 | HHW |
| 0740 | McNew Laboratory | | |
| | | 005874 | ELE |
| | | 005974 | CHW |
| | | 005968 | HHW |
| 0815 | Entomology Research Lab | | |
| | | 006043 | CHW |
| 0880 | TVMC-Small Animal Building | | |
| | | 005962 | HHW |
| 1026 | Veterinary Medicine Administration | | |
| | | 006053 | HHW |
| 1146 | Biological Control Facility | | |
| | | 005887 | CHW |
| 1156 | Physical Plant Administration & Shops | | |
| | | 007679 | CHW |
| 1197 | Veterinary Research Building | | |
| | | 006355 | ELE |
| | | 006359 | ELE |
| 1504 | Reynolds Medical Sciences Building | | |
| | | 003975 | ELE |
| | | 003989 | CHW |
| | | 003993 | HHW |
| 1525 | Nuclear Magnetic Resonance Facility | | |
| | | 006716 | HHW |
| 1537 | Agriculture Public Building | | |
| | | 009620 | ELE |
| | | 009621 | ELE |
| | | 009622 | CHW |
| | | 009623 | HHW |
| 1558 | Cox-McFerrin Center for Aggie Basketball | | |
| | | 007577 | HHW |
| 1559 | West Campus Parking Garage | | |
| | | 004322 | CHW |
| 1560 | Student Recreation Center | | |
| | | 000363 | ELE |
| | | 000366 | ELE |
| | | 002933 | CHW |
| | | 002937 | HHW |
| 1601 | International Ocean Discovery Building | | |
| | | 006351 | ELE |
| | | 006382 | CHW |
| | | 008144 | CHW |
| | | 008145 | HHW |
| 1604 | Offshore Technology Research Center | | |
| | | 006660 | ELE |
| 1609 | TTI Headquarters | | |
| | | 006497 | HHW |
| 1910 | National Center for Therapeutics Manufacturing | | |
| | | 007520 | HHW |

# Wells Residence Hall (TAMU Bldg #290)

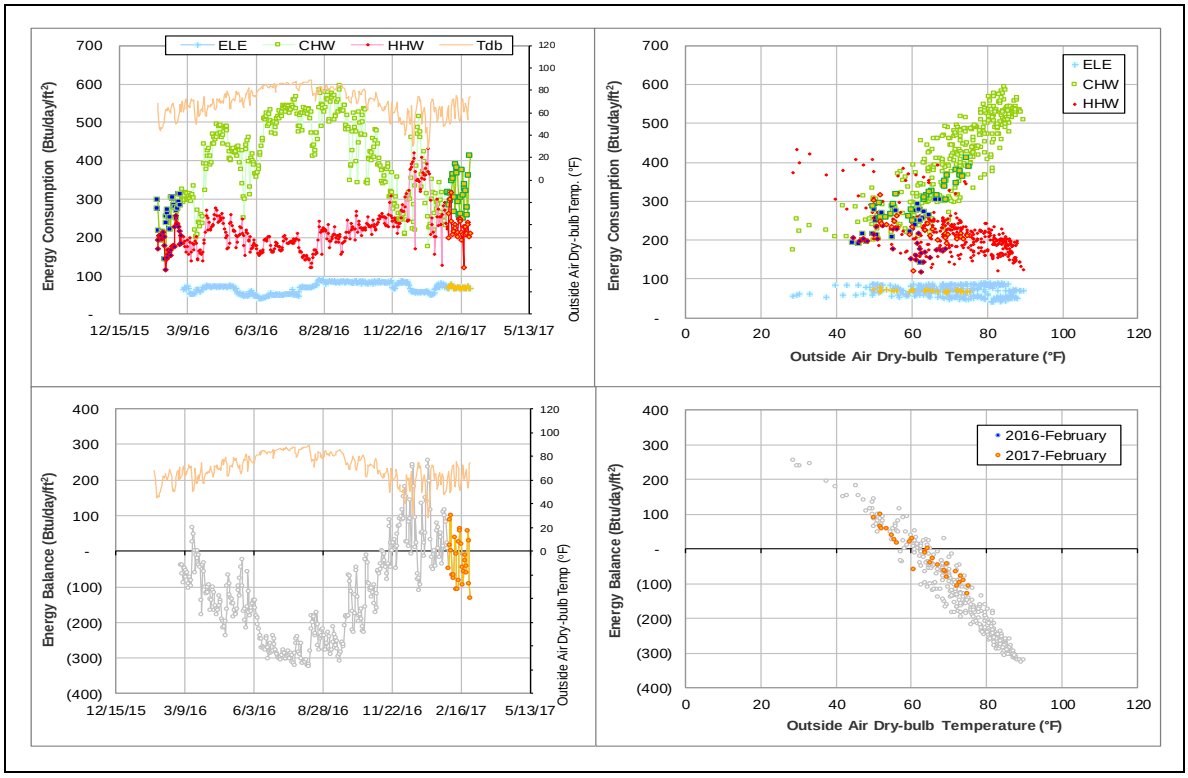
## *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| Energy Balance | The energy balance level is low. The cross-point temperature is around 60°F. | For several years |

## *Comments*

This building has a low level of energy balance load with the cross-point temperature around 60°F. The balance seems to have moved to 65°F due to an increase in HHW flow from 120 gpm to 150 gpm in December 2016, but more data are needed to verify this change. The low $E_{BL}$ level suggests imbalance of metered energy use in the building, but we are not able to determine the cause.

## *Explanatory Figure: 13 months energy balance plot with original data*



# Rudder Residence Hall (TAMU Bldg #291)

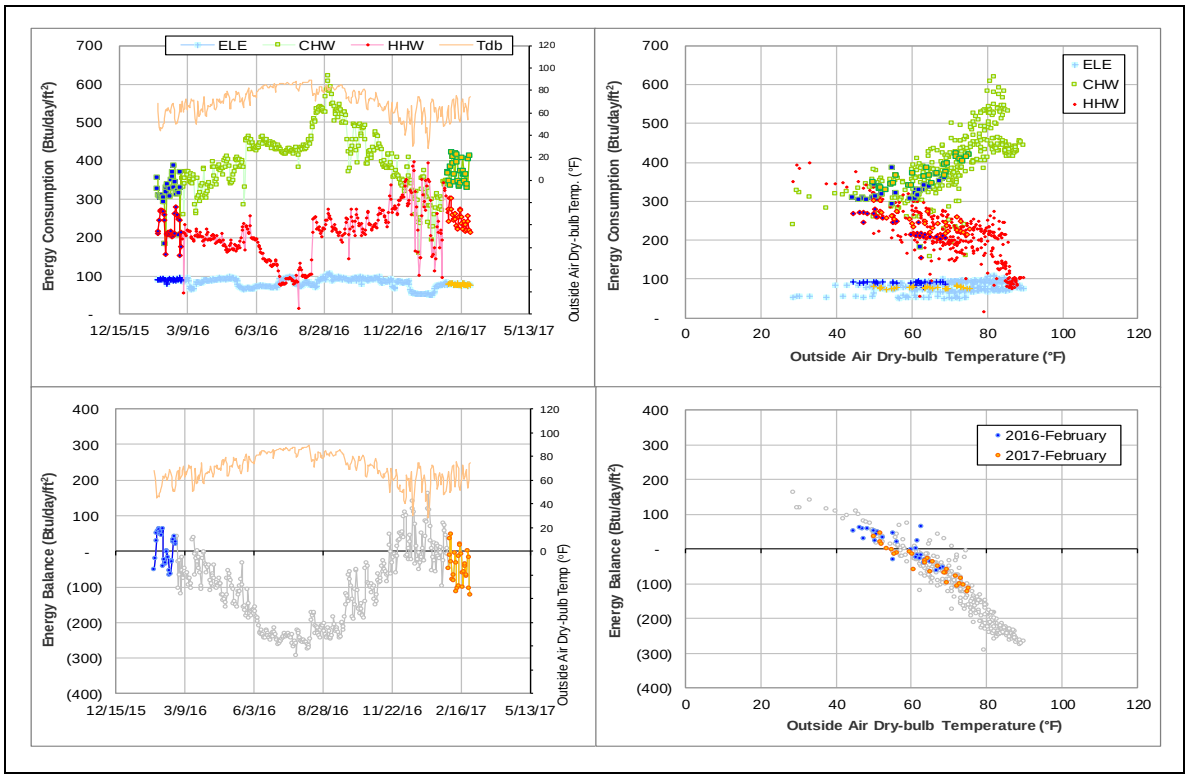
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | Sudden increase by 150 Btu/day/ft$^2$. | Since August 2016 |
| HHW | Sudden increase by 100 Btu/day/ft$^2$. The consumption is unstable. | Since August 2016 |
| Energy Balance | The energy balance level is low. The cross-point temperature is around 60°F. | For several years |

### *Comments*

This building has a low level of energy balance load with the cross-point temperature around 60°F for years. The low $E_{BL}$ level suggests imbalance of metered energy use in the building, but we are not able to determine the cause.

### *Explanatory Figure: 13 months energy balance plot with original data*



# Appelt Residence Hall (TAMU Bldg #293)

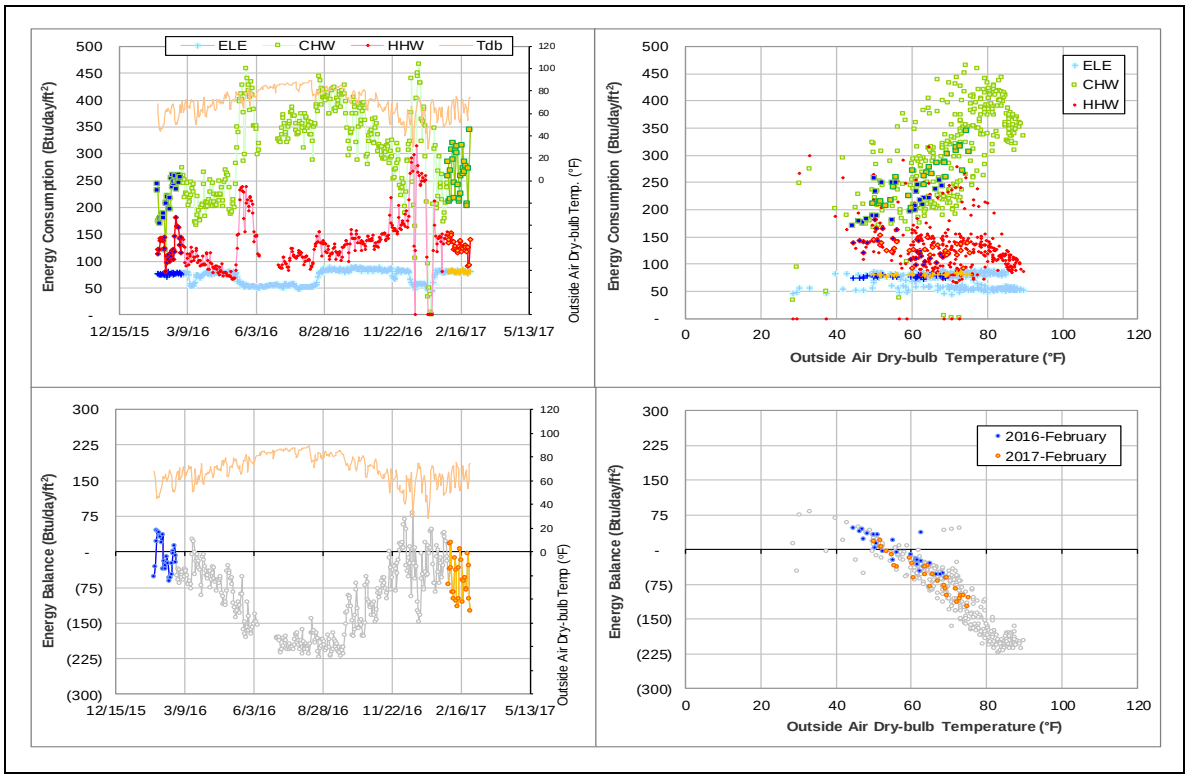
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW and HHW | The consumption level changes frequently | Since December 2014 |
| Energy Balance | The energy balance decreased and the cross-point temperature is around 55°F. | Since January 2015 |

### *Comments*

Both the CHW and HHW consumption levels have been unstable and changing frequently. The energy balance load was low with the cross-point temperature around 55°F. The low $E_{BL}$ level suggests imbalance of metered energy use in the building, but we are not able to determine the cause.

### *Explanatory Figure: 13 months energy balance plot with original data*



# Bright Building (TAMU Bldg #353)

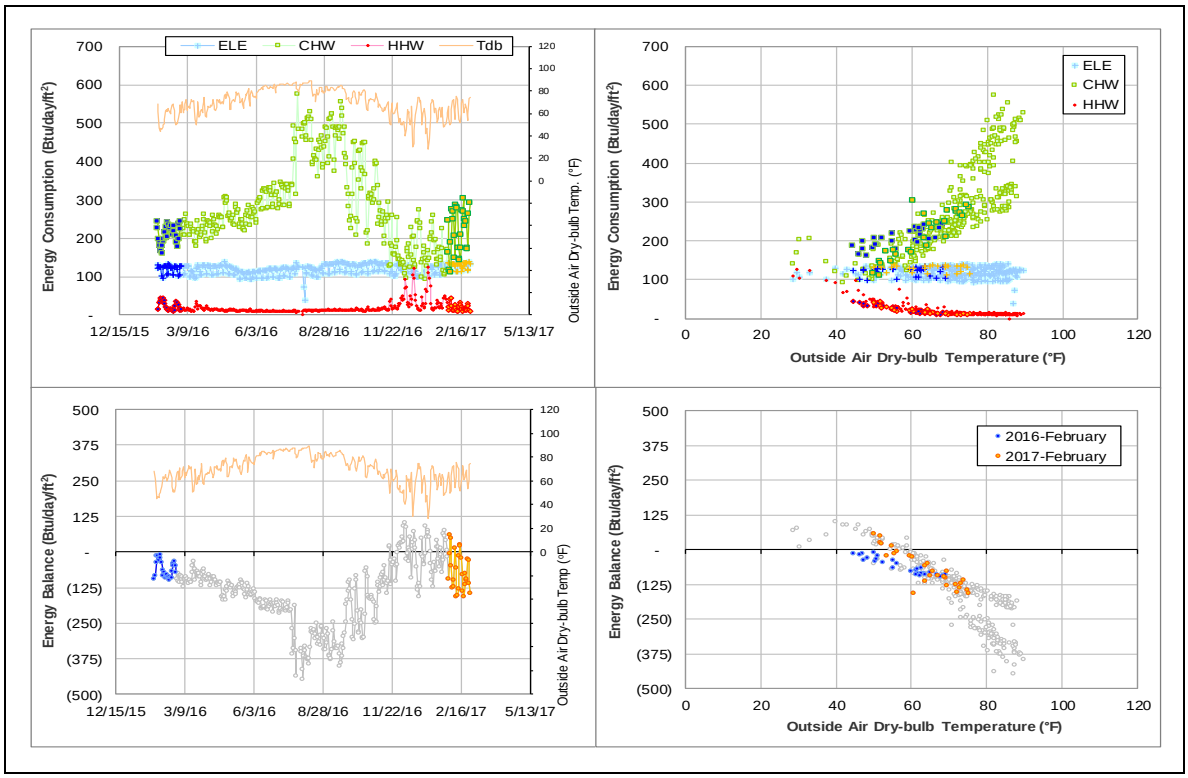
## *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| Energy Balance | The energy balance level has been low for years. The cross-point temperature was in the range of 40 - 70 °F. | For several years |
| CHW | The consumption pattern changed. | Since July 2016 |

## *Comments*

The energy balance load ($E_{BL}$) of this building has varied but always been low (the cross-point temperature was between 40°F and 70°F) for years. CHW consumption increased greatly on 7/21/2016 and switched to a new pattern with a steeper slope. The cross-point temperature of energy balance is now 60°F.

## *Explanatory Figure: 13 months energy balance plot with original data*



# Langford Architecture Center Building A (TAMU BLDG # 398)

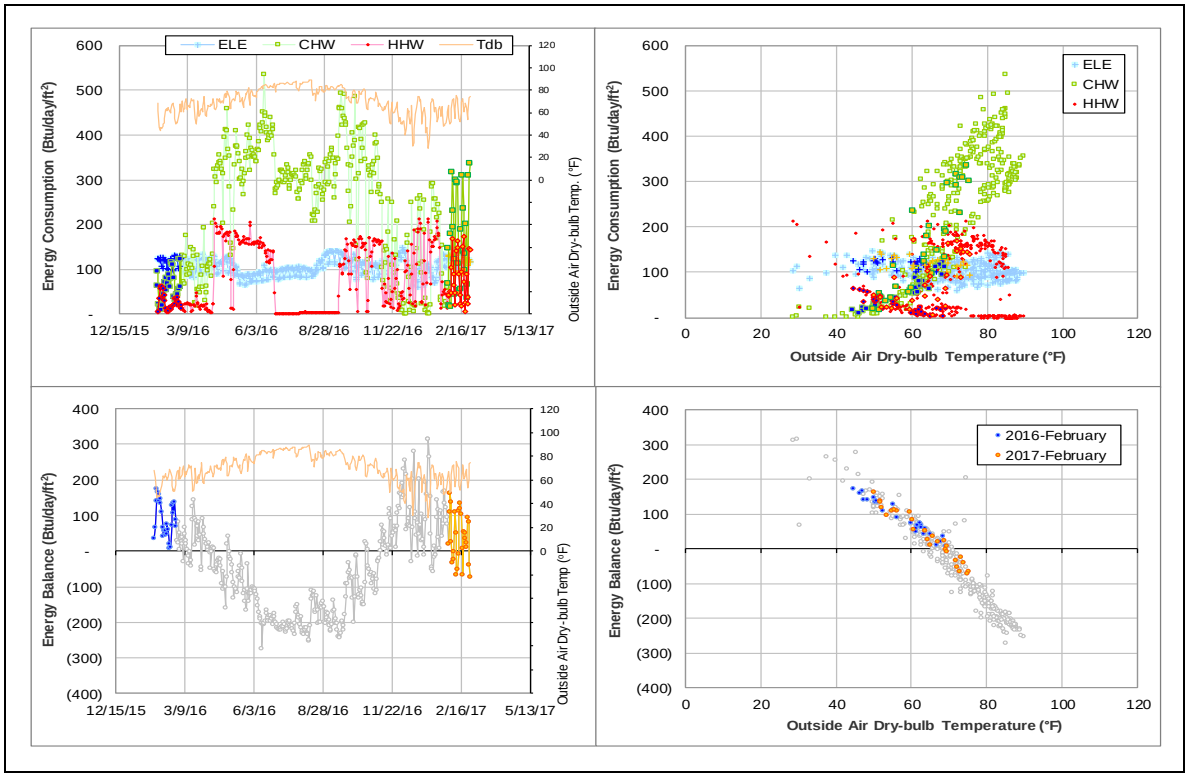
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW and HHW | The consumption has been fluctuating greatly. | For several years |

### *Comments*

CHW and HHW consumption has been unstable for several years. HHW flow rate can be seen going up and down between a maximum level and a very low level. The energy balance, however, is not disturbed during these fluctuations.

### *Explanatory Figure: 13 months energy balance plot with original data*



# Legett Residence Hall (TAMU BLDG # 419)

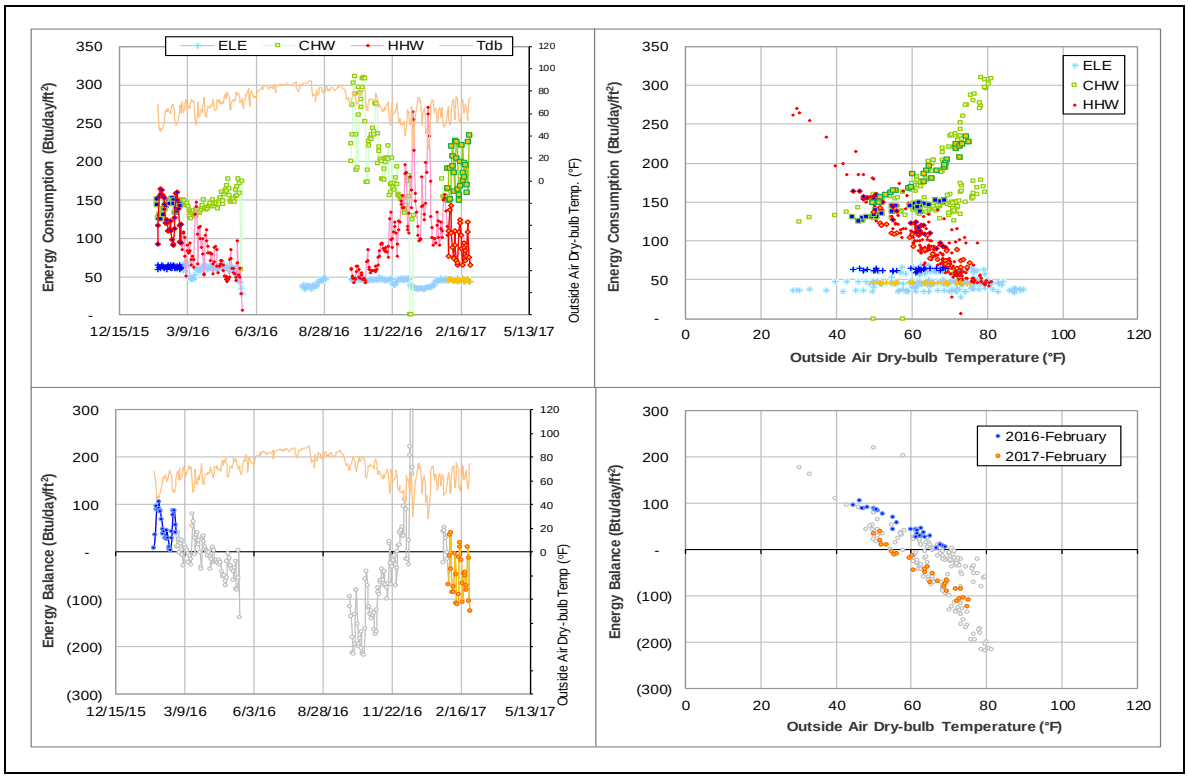
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| ELE | The consumption decreased after the missing period. | Since October 2016 |
| CHW | The consumption increased after the missing period. | Since October 2016 |
| HHW | The consumption decreased after the missing period. | Since October 2016 |
| EB | The cross-point moved from 68°F to 55°F. | Since October 2016 |

### *Comments*

After the missing period from May to October 2016, ELE and HHW consumption decreased and CHW consumption increased. EB cross-point moved from 68°F to 55°F since then.

### *Explanatory Figure: 13 months energy balance plot with original data (The plot is rescaled to remove the pikes.)*



# Luedecke Building (Cyclotron) (TAMU BLDG # 434)

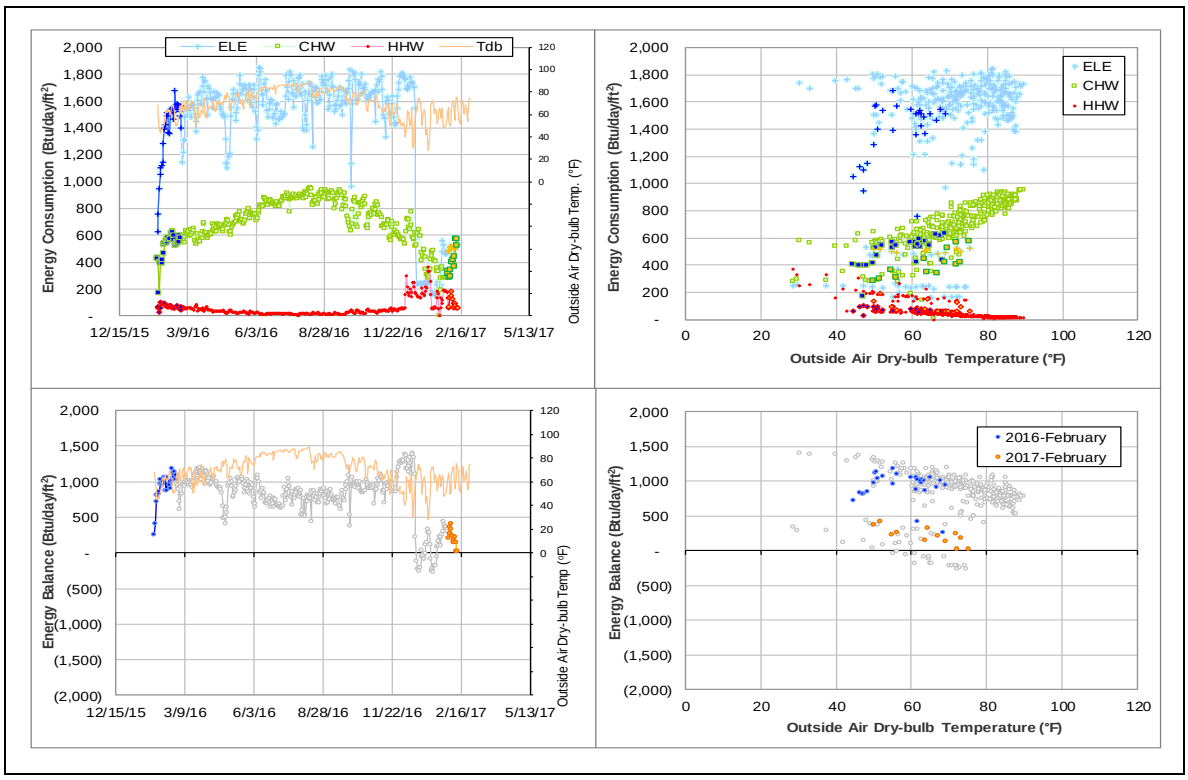
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| All utilities | Utilities did not rise back to normal level. | February 2017 |

### *Comments*

The consumption of all utilities of this building drops to a very low level in December and gradually rises back to normal in February each year. But the consumption has not increased back to normal in 2017. The meter readings went missing on 2/13/2017.

### *Explanatory Figure: 13 months energy balance plot with original data (The plot is rescaled to remove the pikes.)*



# Mosher Residence Hall (TAMU BLDG # 433)

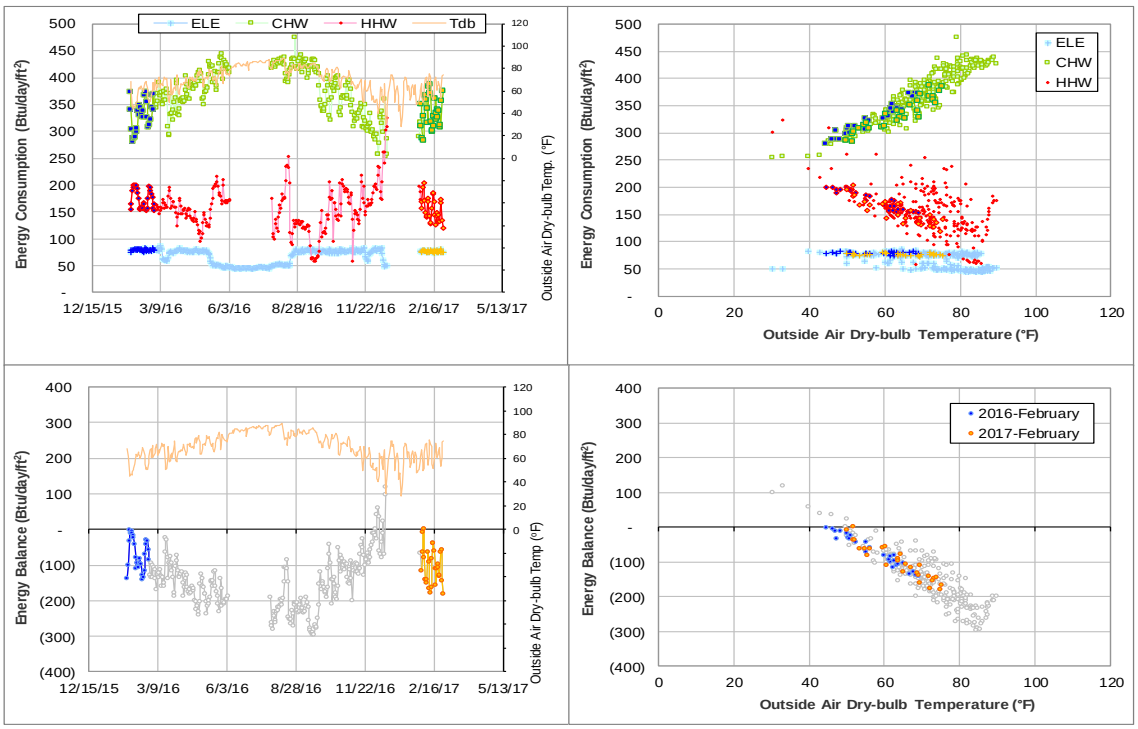
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The consumption level gradually increased. | Since 2015 |
| HHW | The consumption level gradually decreased. | Since 2015 |
| ELE | The consumption level suddenly decreased. | Since January 2016 |
| Energy Balance | The cross-point temperature is lower than 50°F. | Since 2015 |

### *Comments*

The ELE meter (MID 009083) replaced old meter (MID 000290) since January 2016. After that, the consumption decreased from 105 Btu/day/ft$^2$ to 80 Btu/day/ft$^2$ (approximately 25%). At near 40°F compared to 11/2014, CHW increased slightly by about 25 Btu/day/ft$^2$ and HHW decreased slightly by about 25 Btu/day/ft$^2$. HHW started to scatter since 5/2016 (shortly before the missing period). The cross-point temperature decreased further from near 55°F to lower than 50°F now. It is suggested to investigate these meters.

### *Explanatory Figure: 13 months energy balance plot with original data*



# Oceanography & Meteorology Building (TAMU Bldg #443)

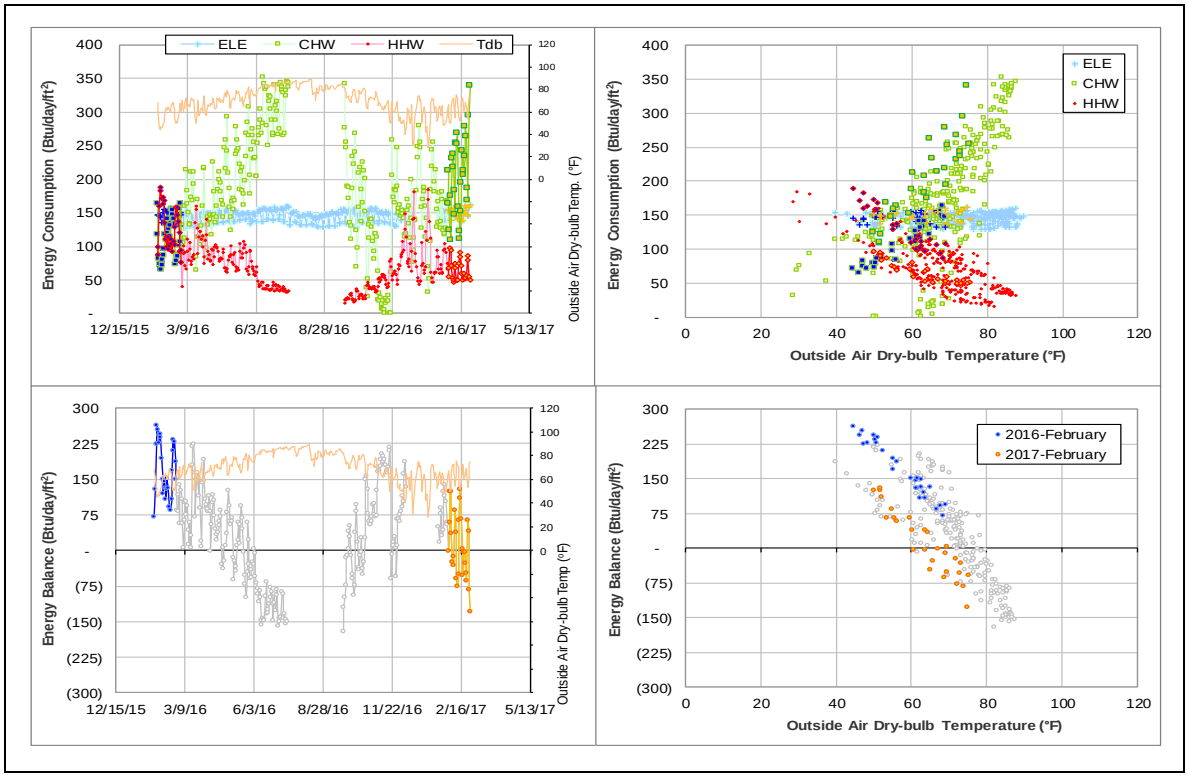
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The consumption significantly decreased after a missing period. | Since September 2016 |
| | The consumption increased suddenly. | Since November 2016 |
| HHW | The consumption significantly decreased after a missing period, but is at the same level last year. | Since September 2016 |
| EB | The cross-point temperature moved from 75°F to 62°F. | Since November 2016 |

### *Comments*

Both CHW and HHW consumption decreased significantly after a missing period in September 2016, but EB was not affected. CHW then saw a sharp increase at the end of November 2016, and EB moved from 75°F to 62°F. This period, though, is suspected to have questionable meter readings. See also section II-2.

### *Explanatory Figure: 13 months energy balance plot with original data.*



# Teague Research Center (TAMU BLDG # 445)

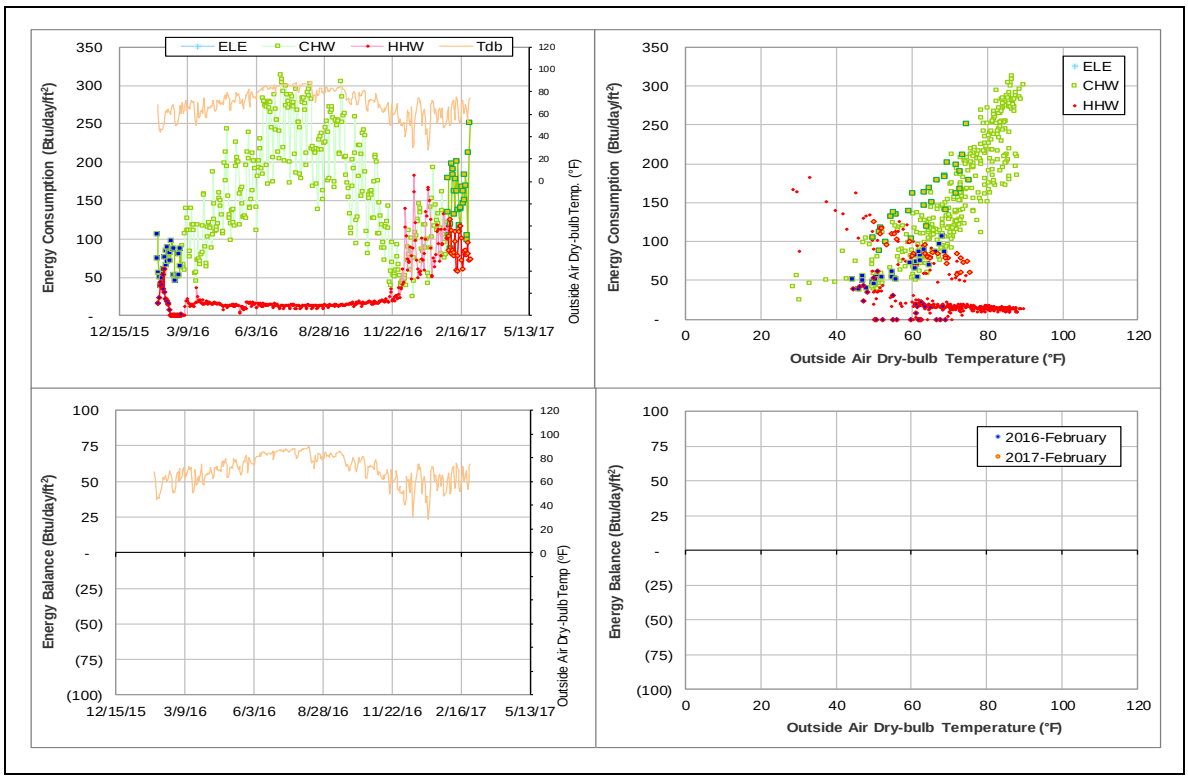
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The consumption pattern keeps fluctuating. | For several years,<br>Most recently December 2016 |
| HHW | The consumption pattern keeps fluctuating. | For several years,<br>Most recently December 2016 |

### *Comments*

The most recent change of CHW in December 2016 was caused by an increase of flow rate. Now the consumption is higher than in the previous year. The change of HHW pattern may have been caused by a sudden increase in Delta-T in December 2016. HHW consumption is now also appreciably higher than the level of last year. See also II-2. See also #517 in II-3.

### *Explanatory Figure: 13 months energy balance plot with original data*



# DPC Annex (TAMU BLDG # 517)

## *Detected issues in the energy balance and/or the consumption data*

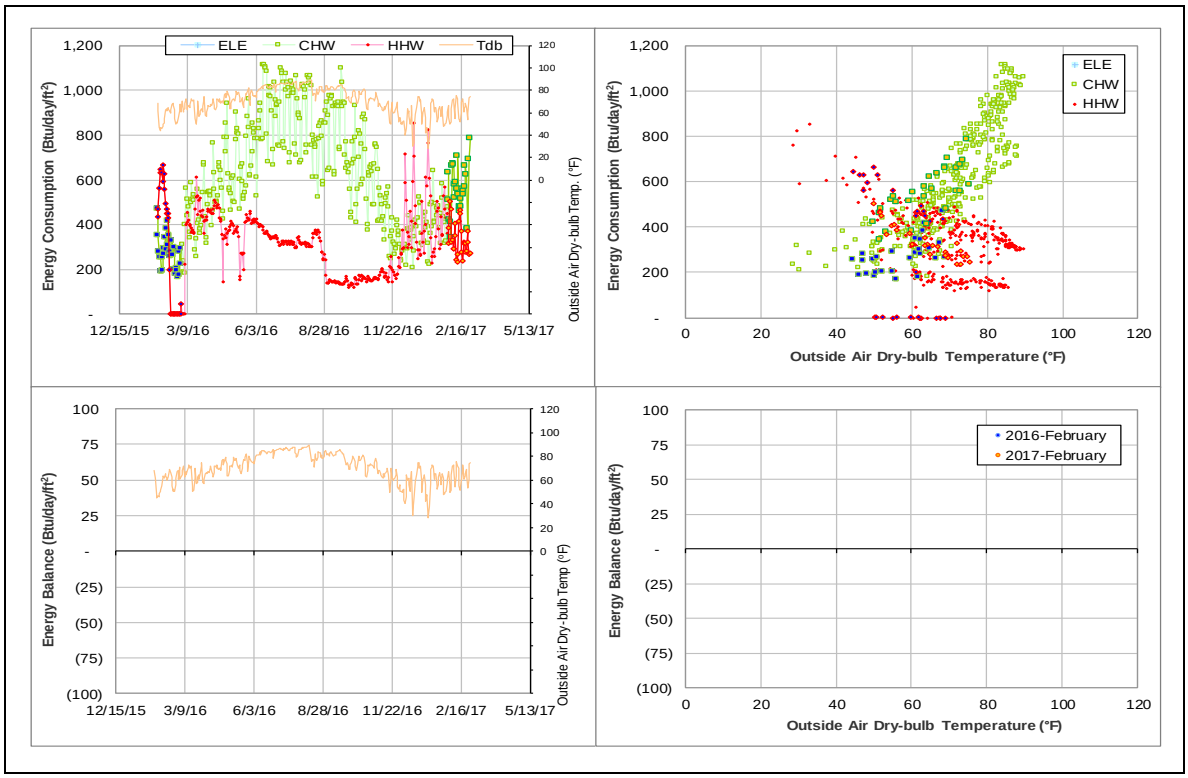
| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The consumption pattern is unstable. | For several years,<br>Most recently December 2016 |
| HHW | The consumption pattern is unstable. | For several years,<br>Most recently December 2016 |

## *Comments*

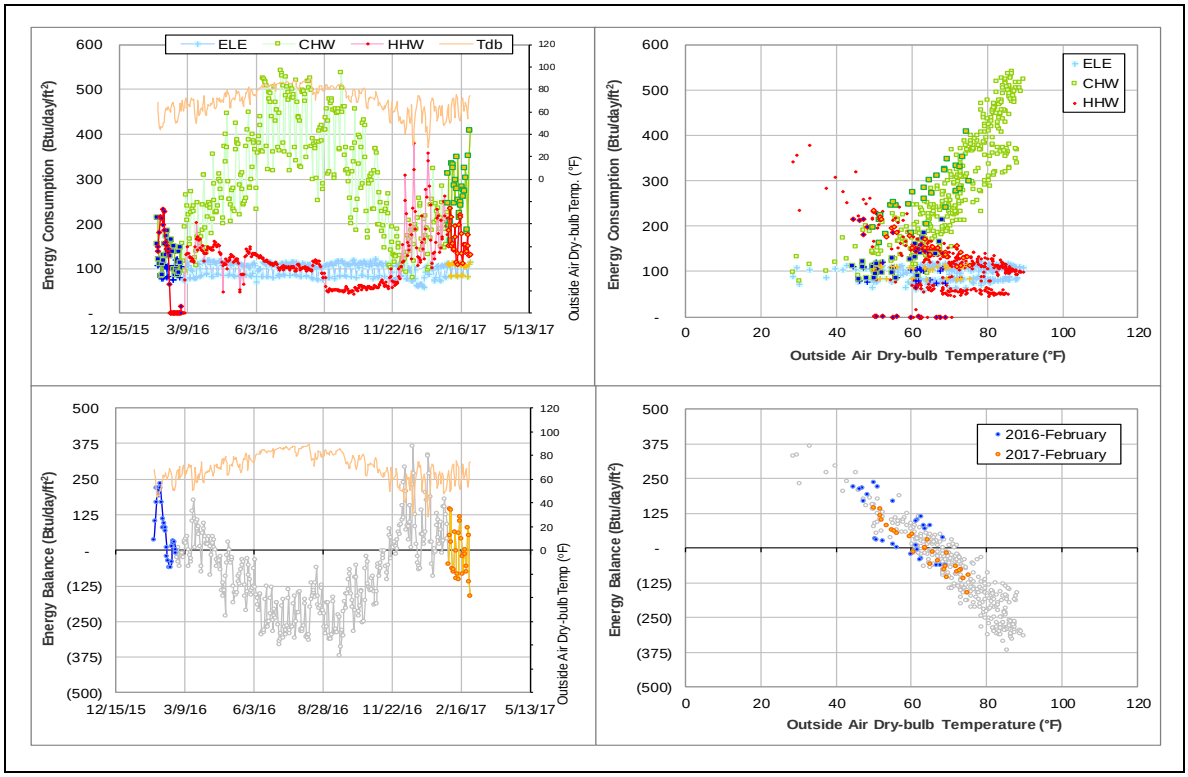
The most recent change of CHW in December 2016 was caused by a gradual increase of Delta-T. Now the consumption is higher than in the previous year. HHW consumption has been shifting frequently. See also II-2. See also #445 in II-3.

The combined EB plot for these two buildings (as they share ELE MID's 006411 & 006415) does not see obviously noticeable behavior, except that the cross-point is only slightly higher than 60°F.

## *Explanatory Figure: 13 months energy balance plot with original data*



***Explanatory Figure: 13 months energy balance plot with original data for total of #445 and #517***



# Rudder Theatre Complex (TAMU Bldg #446)

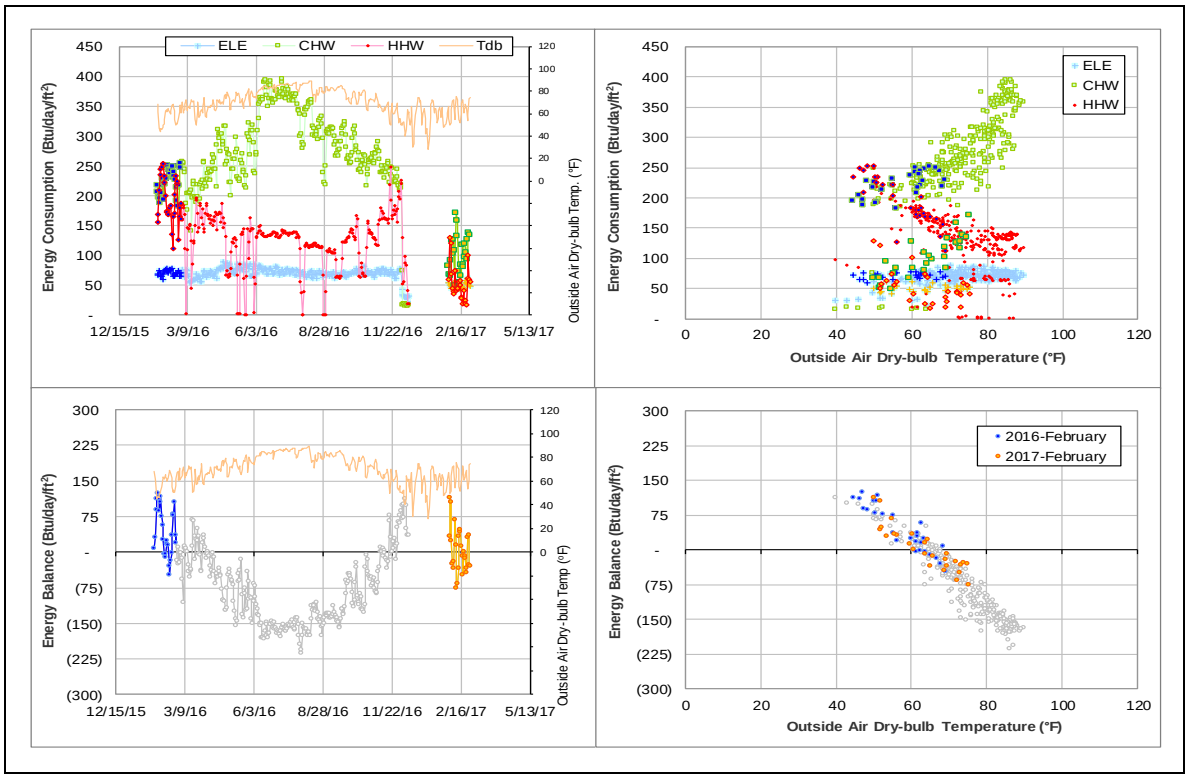
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| All Utilities | All utilities dropped to very low level and have not recovered. | Starting December 2016 |

### *Comments*

All utilities for this building had dropped to a very low level during winter break last year. The similar phenomena also appeared in the winter break in 2015. This is not suspected to be a meter malfunction. Data from last year suggest that the consumption went back to the normal level near Monday 1/25/2016. Data of the current year have not yet recovered to the normal level at the end of February. EB of this building does not show separate patterns of these two levels.

### *Explanatory Figure: 13 months energy balance plot with original data.*



# Psychology Building (TAMU Bldg #463)

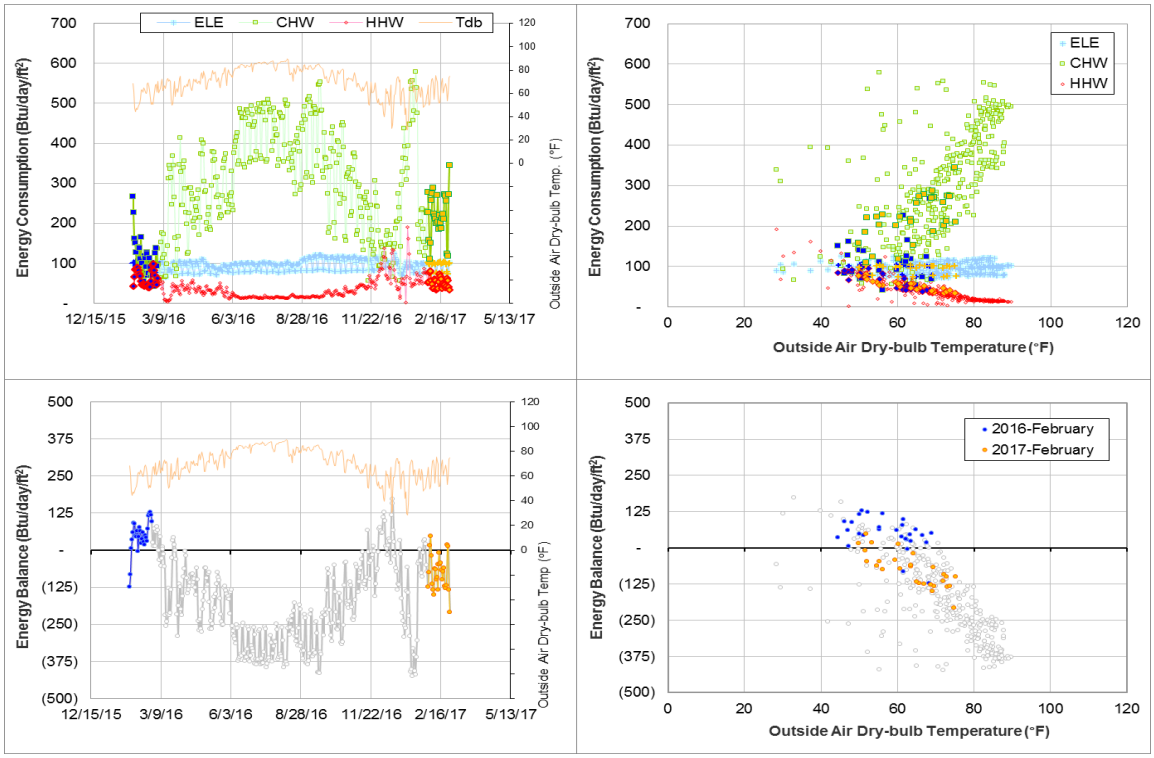
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| Energy Balance | The pattern is scattered and the level is low. | Ongoing after ESCO implementation in 2011 |
| CHW | The consumption pattern versus ambient temperature scatters. | |

### *Comments*

The CHW consumption pattern versus ambient temperature started to scatter after ESCO implementation. The CHW consumption level is high, because the CHW temperature differential is around 20°F that is high for an office building with conventional HVAC systems. The building had energy efficiency improvements by ESCO during the period of 5/9/2011–8/19/2011.

### *Explanatory Figure: 13 months energy balance plot with original data.*



# Fermier Hall (TAMU Bldg #482)

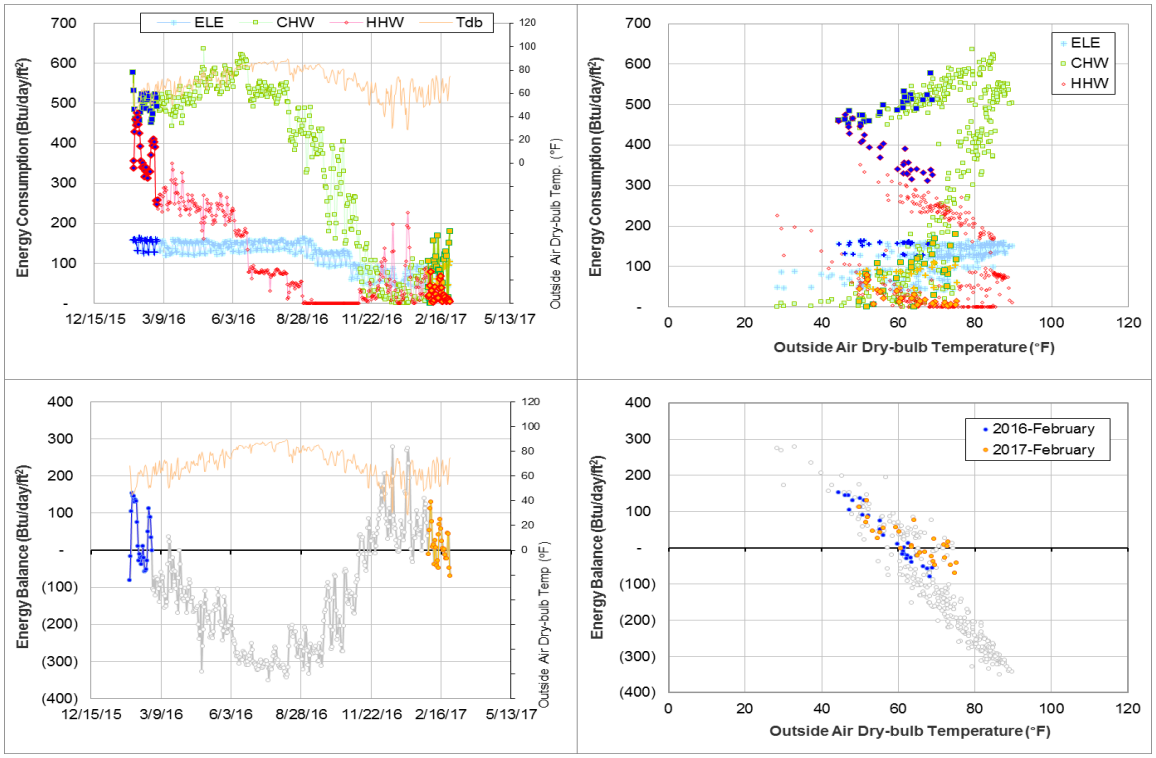
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW/HHW | The consumption level has significantly decreased. | 6/24/2016 – Ongoing |

### *Comments*

CHW and HHW of this building decreased significantly in steps since 6/24/2016. Since the energy balance plot has retained its pattern up to 12/23/2016, the drop may be due to a decrease in usage. The CHW winter break (12/23/2016 – 12/31/2016) consumption is lower than the recent pattern but does not appear to be a meter issue.

### *Explanatory Figure: 13 months energy balance plot with original data.*



# Chemistry Building (TAMU Bldg #484)

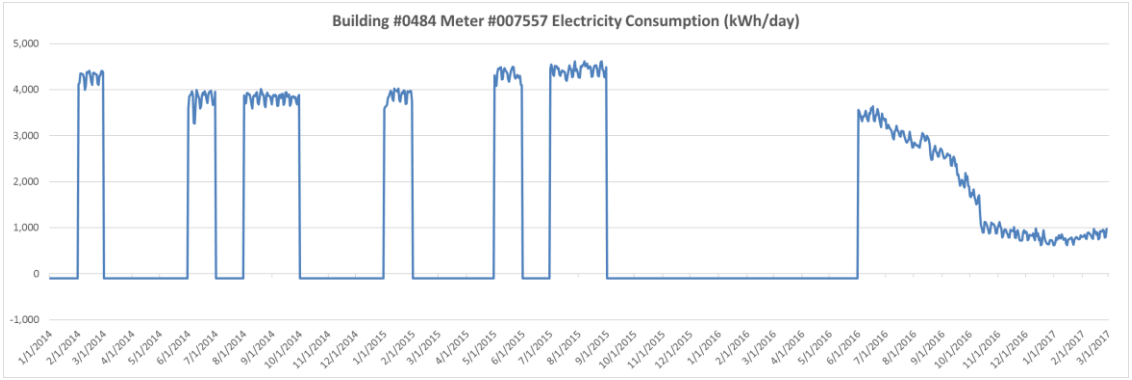
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| ELE | The ELE consumption level has decreased significantly. | 6/1/2016 – ongoing |

### *Comments*

There are four ELE meters for this building. The consumption for one of them (MID #007557) decreased gradually from 6/1/2016 to 8/31/2016 then more significantly in September and October 2016. This change appears to be related to the building renovations.

### *Explanatory Figure: Times series plot for meter #007557*



# Civil Engineering Building (TAMU Bldg #492)

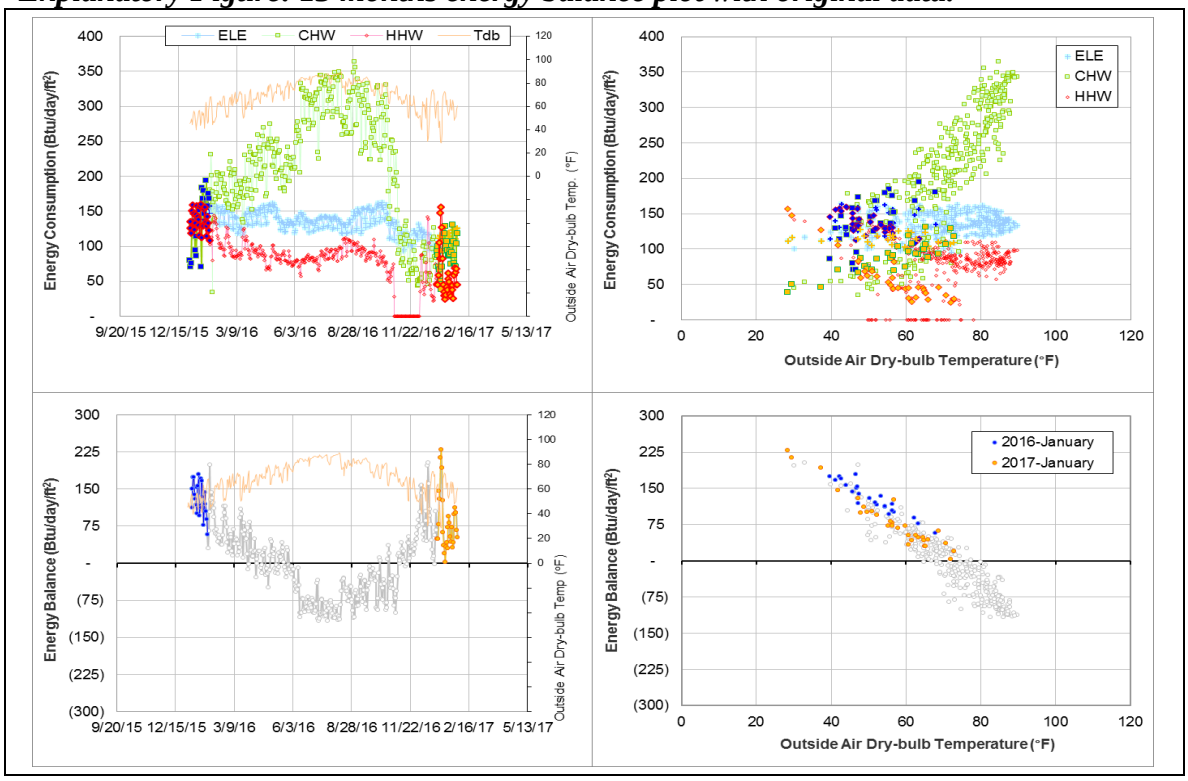
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW/HHW | The consumption level decreased. | 10/29/2016 – ongoing. |

### *Comments*

Starting 10/29/2016, the CHW and HHW consumption levels decreased and have remained low. Besides the HHW meter issue from 10/29/2016 – 12/7/2016 (zero flow rate and near zero delta-T), the lower consumption levels may be due to ESCO.

### *Explanatory Figure: 13 months energy balance plot with original data.*



# Utilities & Energy Services Central Office (TAMU Bldg #496)

### *Detected issues in the energy balance and/or the consumption data*

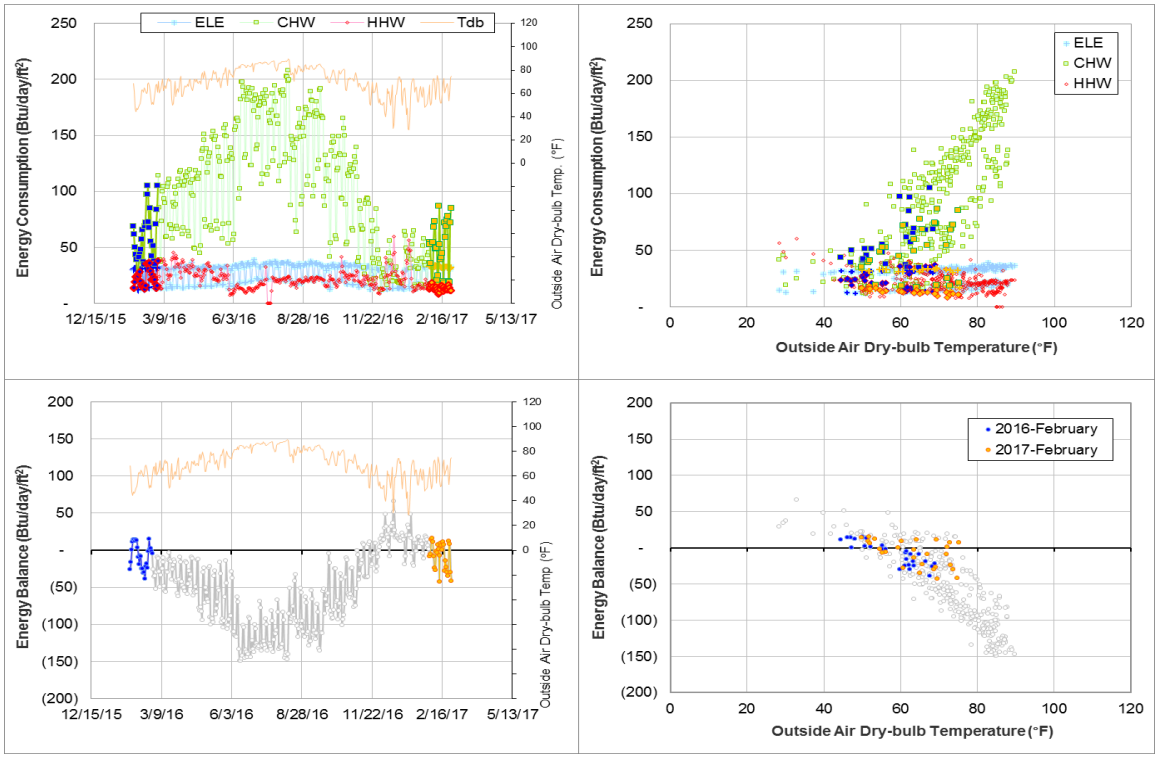
| Data Type | Description of data behaviors | Period |
|---|---|---|
| ELE, CHW, and HHW | The energy use per unit floor area was low compared to other buildings. | Since the data became available on 7/1/2012 |

### *Comments*

The peak electricity use density was around 0.65 W/ft$^2$ which is small compared to that of other office buildings on campus. The delta T for HHW seemed to be small for years. The CHW and HHW consumption per the unit floor area also seemed to be low. It is possible that the GSF we have (46,110 ft$^2$) includes substantial unoccupied space. The CHW consumption during the winter break period (12/23/2016 – 12/31/2016) is lower than previous winter break periods but does not appear to be a meter issue.

The energy balance was scattered due to the consumption level changes for CHW and HHW, the cross-point temperature of the energy balance was in the range of 50 to 70°F.

### *Explanatory Figure: 13 months energy balance plot with original data.*



# Engineering Innovation Center (TAMU Bldg # 499)

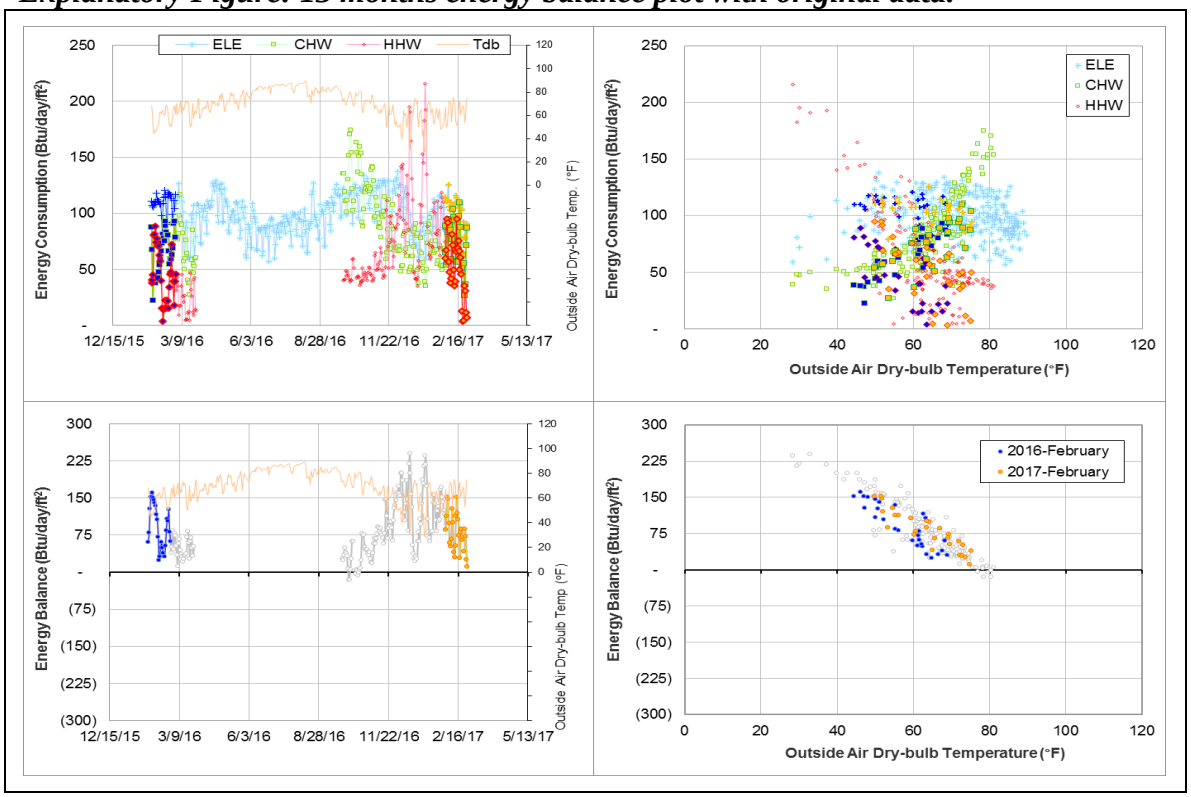
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| Energy Balance | The cross-point temperature is high, around 80 °F. | For years |
| CHW | The consumption level is low compared to the ELE and HHW consumption. | For years |

### *Comments*

The CHW consumption is relatively low compared to the ELE and HHW consumption and it could be the reason causing the high cross-point temperature of energy balance for this building.

### *Explanatory Figure: 13 months energy balance plot with original data.*



# Nagle Hall (TAMU Bldg #506)

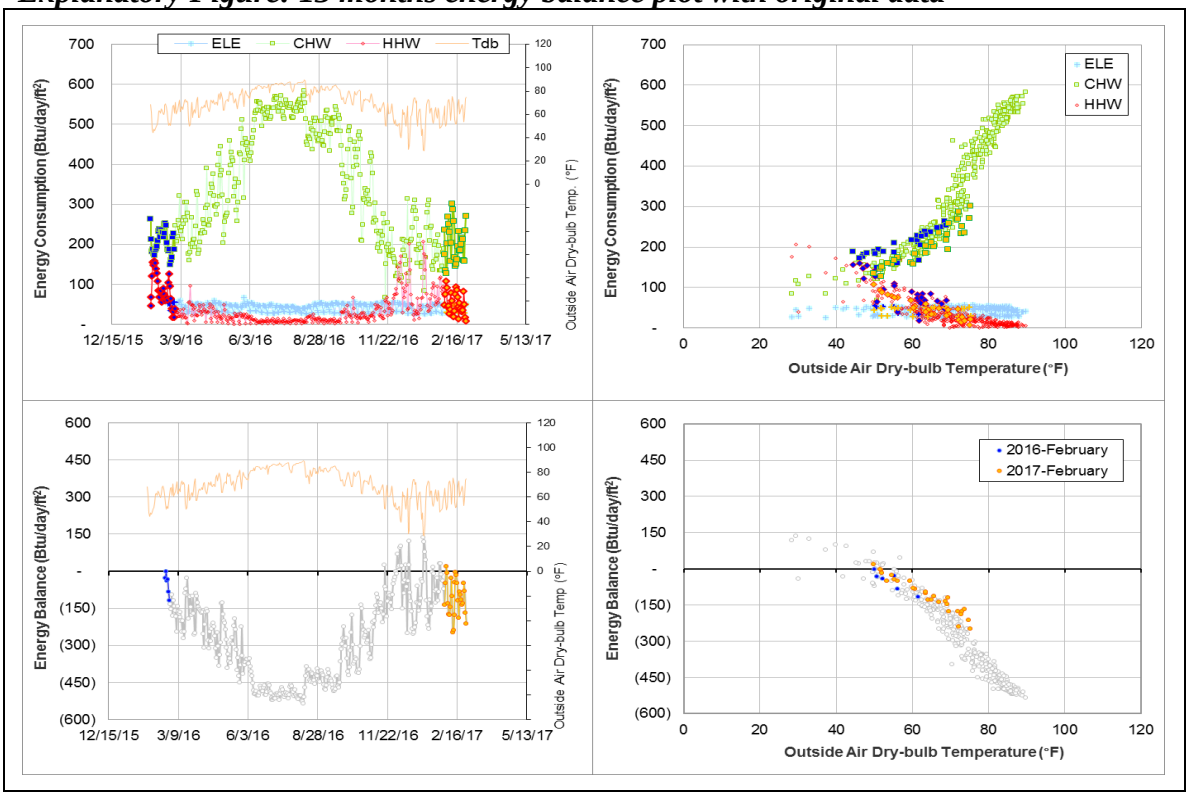
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| Energy Balance | The level was low and the cross-point temperature was around 50°F. | The cross-point temperature has always been low. |
| ELE | The consumption per unit floor area was smaller than those for other office buildings. | The level was always low and gradually decreased over the past 4 years. |

### *Comments*

The ELE consumption was about 100 Btu/day/ft$^2$ lower than the levels in typical office buildings on campus, and this might be a metering error or this meter might not cover the whole building.

### *Explanatory Figure: 13 months energy balance plot with original data*



# All Faiths Chapel (TAMU Bldg #512)

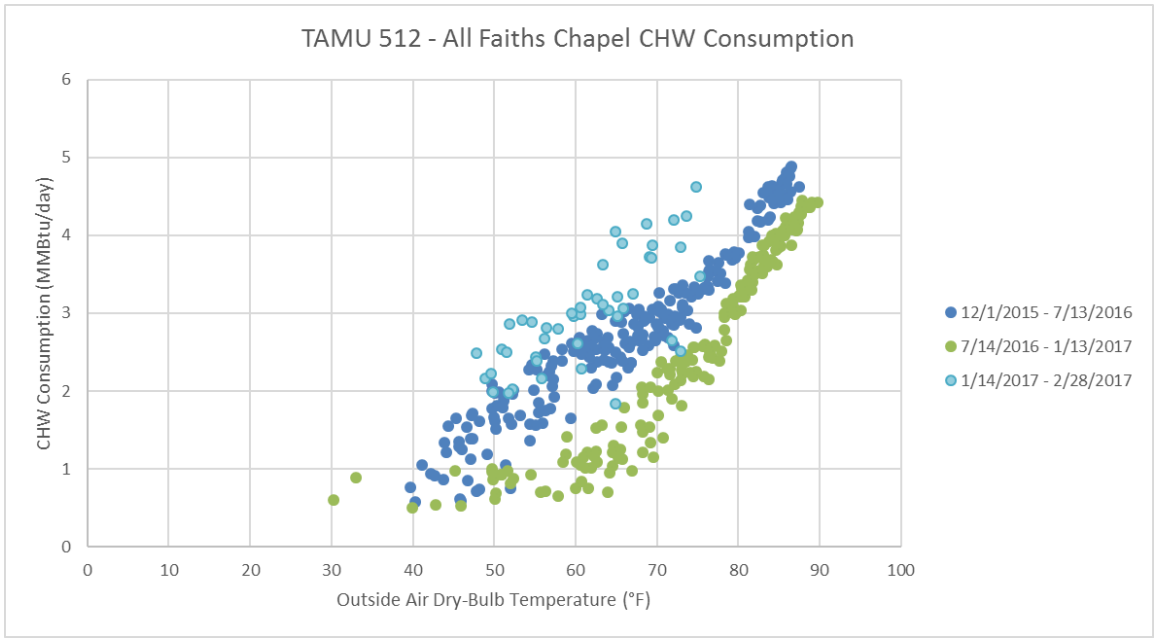
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | The CHW consumption level decreased. | 7/14/2016 – 1/13/2017 |
| | The CHW consumption level increased. | 1/14/2017 – 2/28/2017 |

### *Comments*

From 7/14/2016 to 1/13/2017, the CHW consumption level decreased dropping out of the main pattern. Starting 1/14/2017, the CHW consumption level has increased and appears above the original pattern. More data is needed to see how the pattern continues.

### *Explanatory Figure: 13 months energy consumption versus outside air dry-bulb temperature.*



# Blocker Building (TAMU Bldg #524)

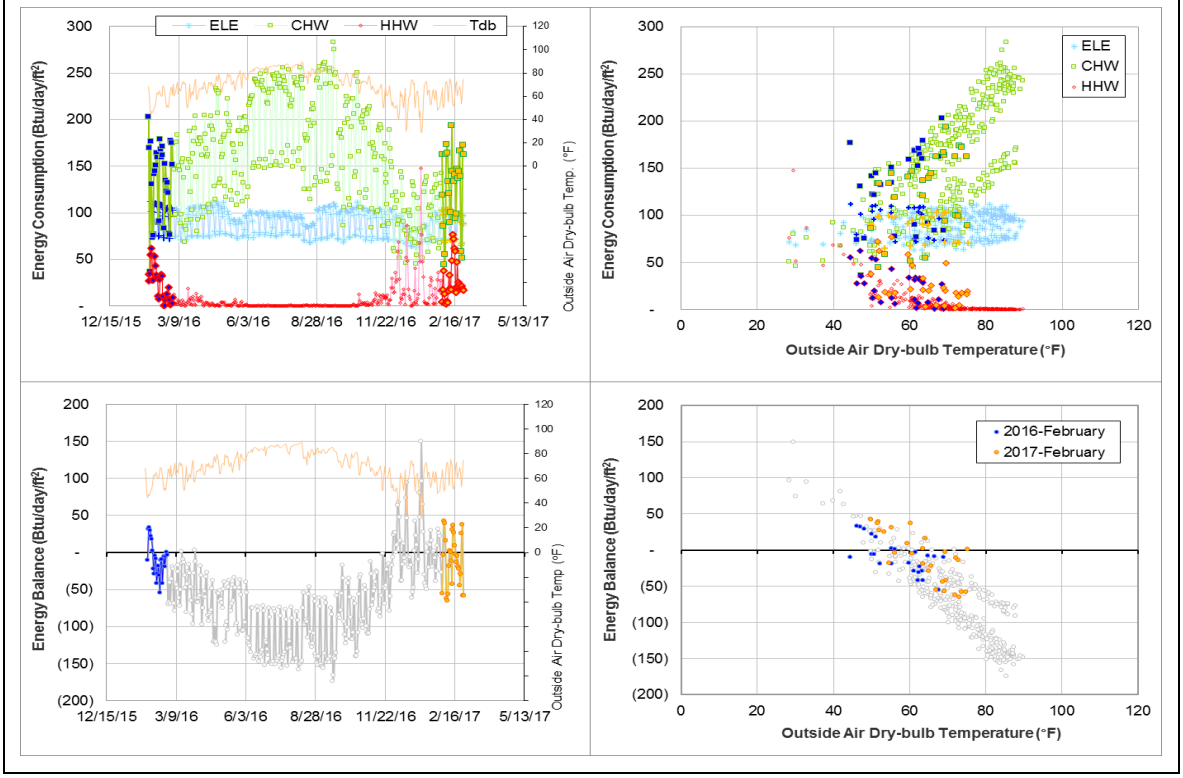
## *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| Energy balance | The level was low and the cross-point temperature was 50 - 60°F. | For years |
| HHW | The consumption level might be low. | Past several years |

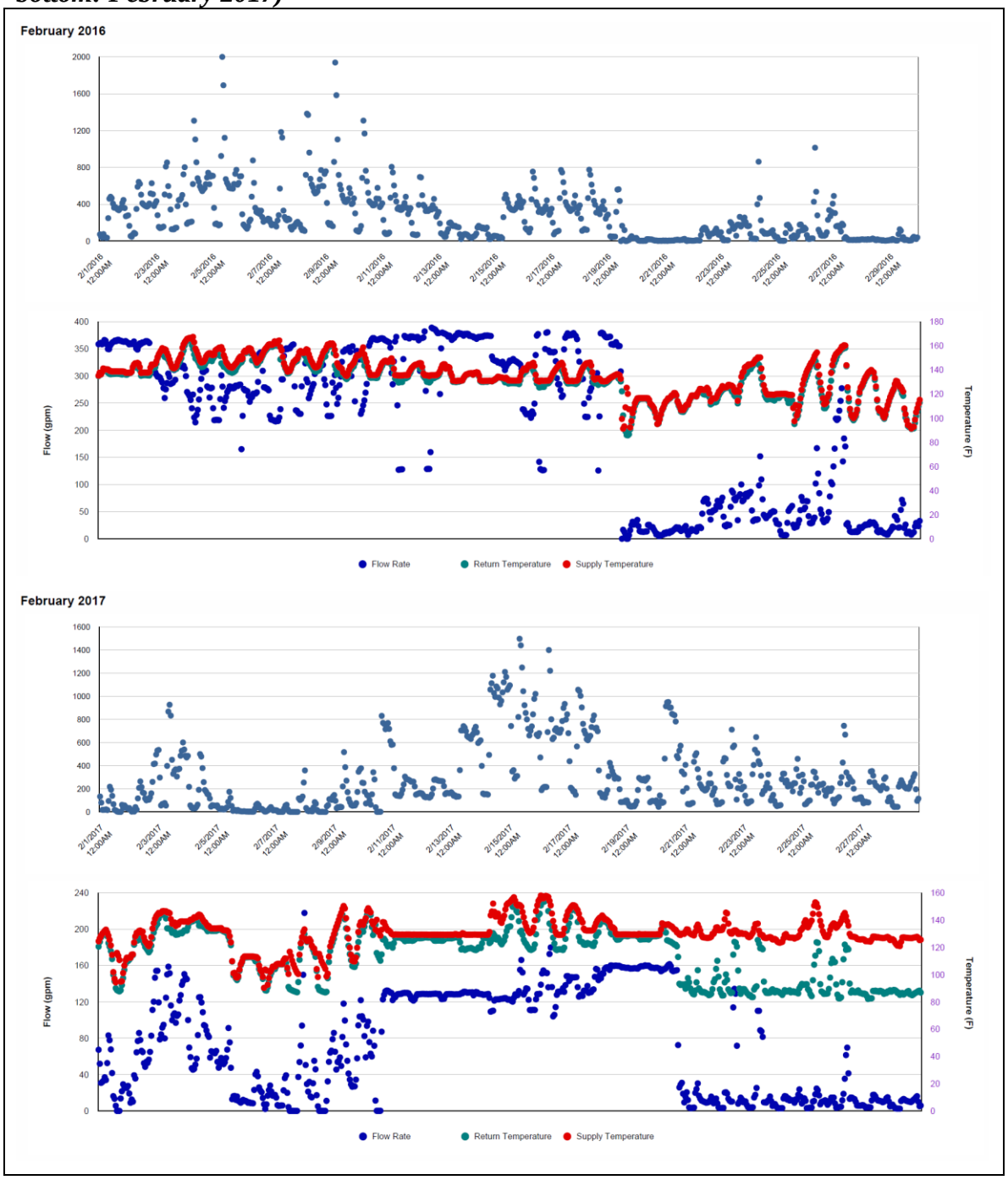
## *Comments*

The cross-point of temperature of energy balance has been low for years. The delta-T and consumption level for HHW seems low for the past couple of years. More information is needed to help identify the reason causing the low energy balance for this building.

## *Explanatory Figure: 13 months energy balance plot with original data*



***Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from the utilities office. (top: February 2016, bottom: February 2017)***



# McNew Laboratory (TAMU Bldg #740)

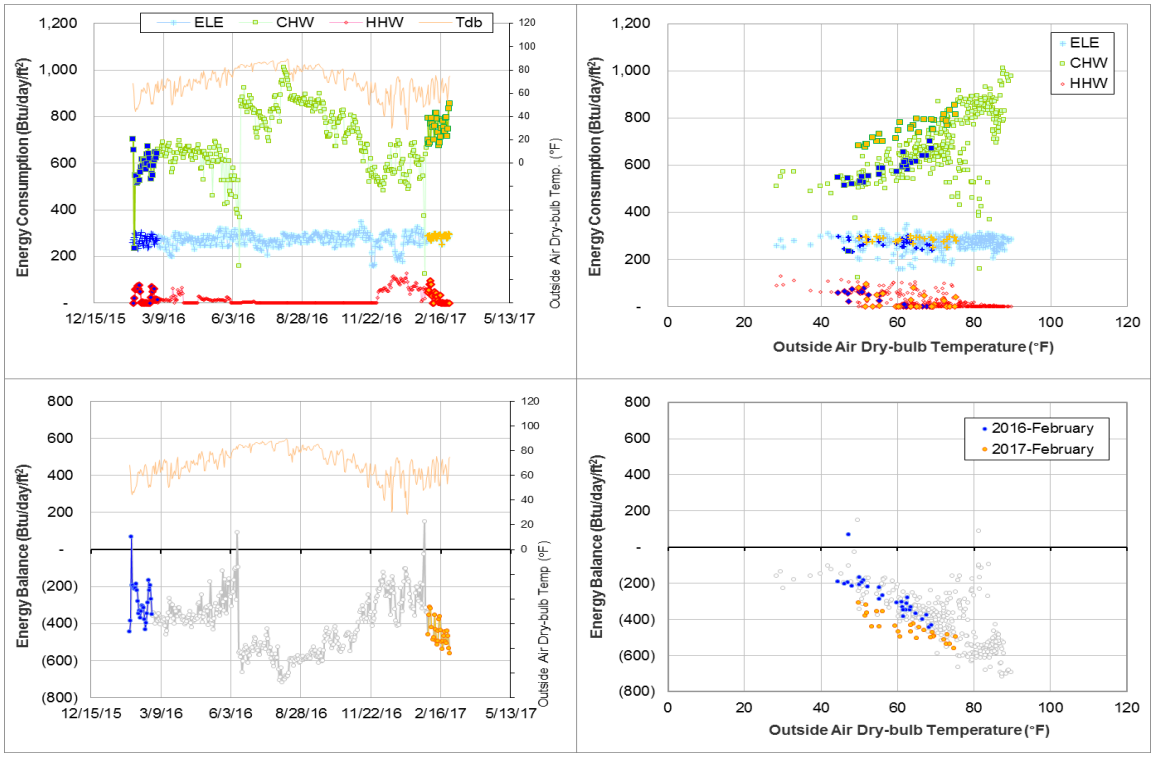
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| Energy Balance | The energy balance pattern level is low. | For years |

### *Comments*

The energy balance level has consistently been low for years. More information is needed to help identify the reason causing the low energy balance for this building.

### *Explanatory Figure: 13 months energy balance plot with original data*



# Entomology Research Lab (TAMU Bldg #815)

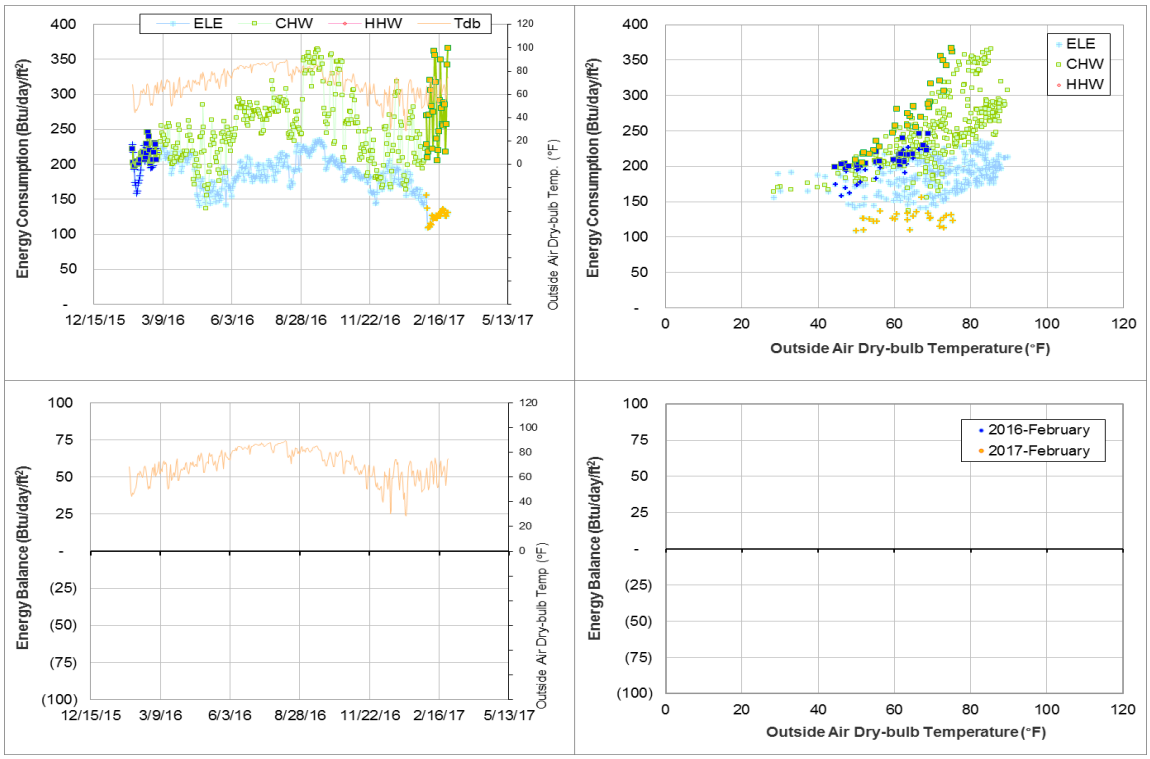
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | Change in energy consumption pattern | September 2016 – Ongoing |

### *Comments*

Starting the month of September 2016, the CHW energy consumption pattern appears to becoming steeper. Consumption levels have increased at higher temperatures compared to previous months. Since there is no HHW for this building, an energy balance chart cannot be created to check the change in CHW with the overall building balance.

### *Explanatory Figure: 13 months energy balance plot with original data*



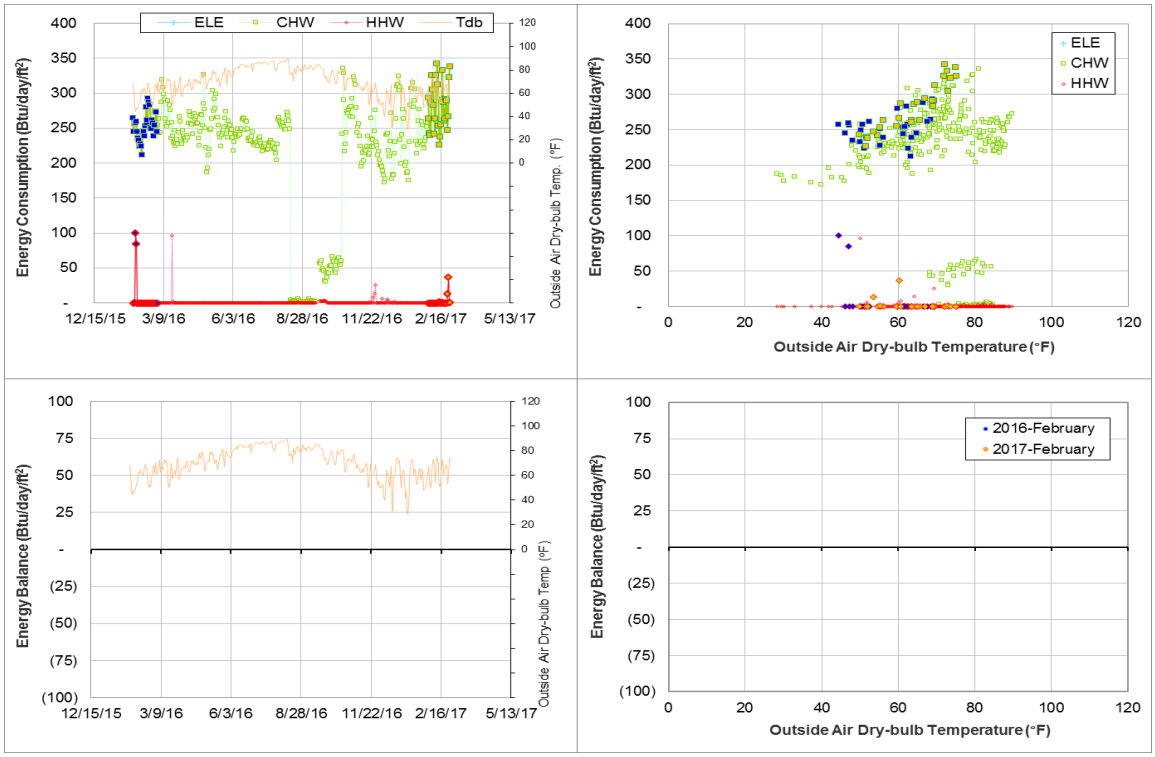
# TVMC-Small Animal Building (TAMU Bldg# 880)

| Data Type | Description of data behaviors | Period |
|---|---|---|
| HHW | The daily consumption is zero or nearly zero for the majority of the days during the year. | Since the data became available in October 2008 |

***Comments***

The daily HHW consumption pattern is zero or nearly zero for the majority of the days for years. Because the HHW consumption level appears unstable since the data became available, a valid consumption model for this meter has not been created.

***Explanatory Figure: 13 months energy balance plot with original data***



# Veterinary Medicine Administration (TAMU Bldg# 1026)

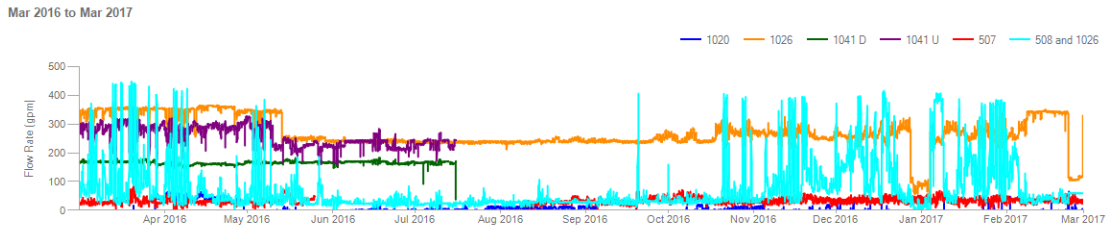
***Detected issues in the energy balance and/or the consumption data***

| Data Type | Description of data behaviors | Period |
|---|---|---|
| HHW<br>006053 | The sub-meter's (006053) flow rate for one building sometimes is higher than the total meter (004170) for two buildings. | For several years |

***Comments***

The HHW meter ID 006053 is a sub-meter of the meter ID 004170 which meters the total energy use in the buildings #508 and 1026. It is questionable that the flow rate of the sub-meter exceeds the flow rate of the main meter. We would like to know the HHW distribution route for the two buildings and the locations of the sensors.

***Explanatory Figure: Time series of hourly HHW flow rates for Veterinary Medicine Administration (Bldg #1026) and neighboring buildings during 2/1/2016–2/1/2017. The combined HHW metered for Bldg #1026 and #508 (light blue) is lower than the standalone HHW meter for only Bldg #1026 (orange).***



# Biological Control Facility (TAMU Bldg# 1146)

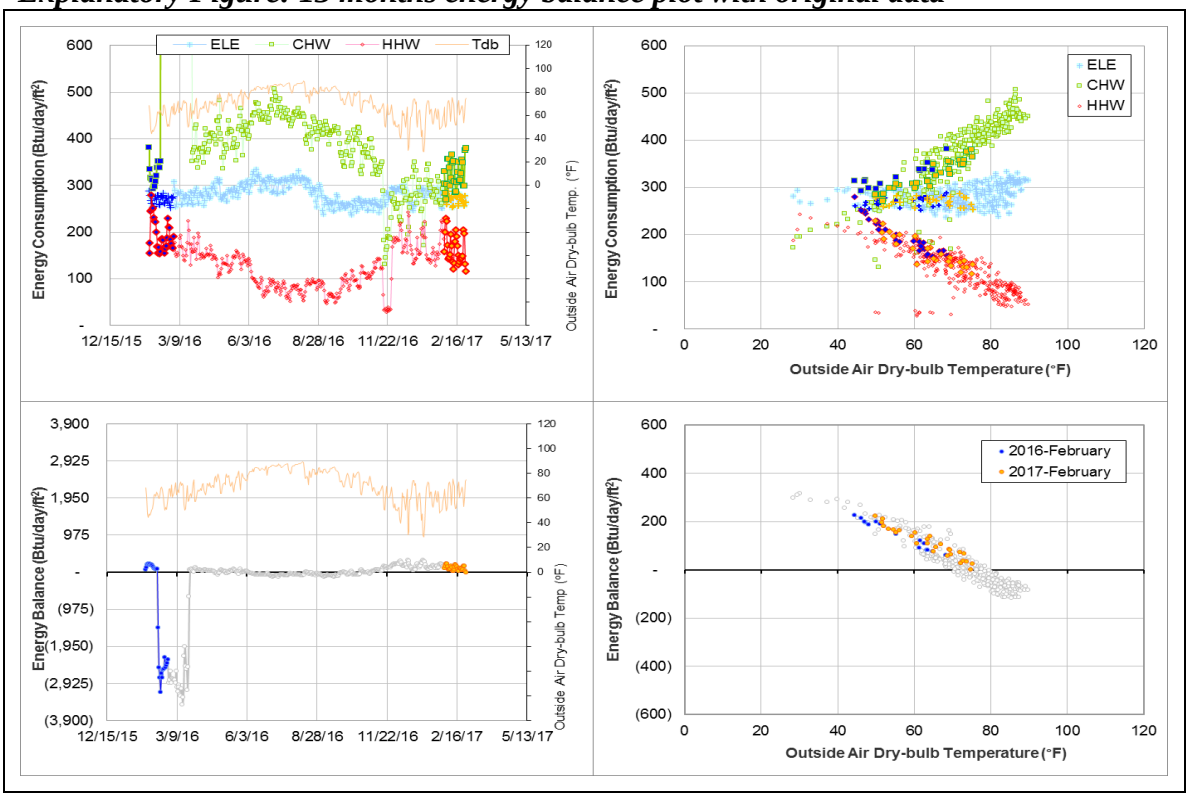
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | Decrease in energy consumption pattern. | December 2016 – Ongoing |
| Energy Balance | Increase in energy balance pattern. | December 2016 – Ongoing |

### *Comments*

Starting in December 2016, the CHW consumption pattern seems to have decreased, especially in higher temperatures. The energy balance pattern is also showing an increase. We will continue to monitor data to see if this is a new pattern emerging.

### *Explanatory Figure: 13 months energy balance plot with original data*



# Physical Plant Administration & Shops (TAMU Bldg# 1156)

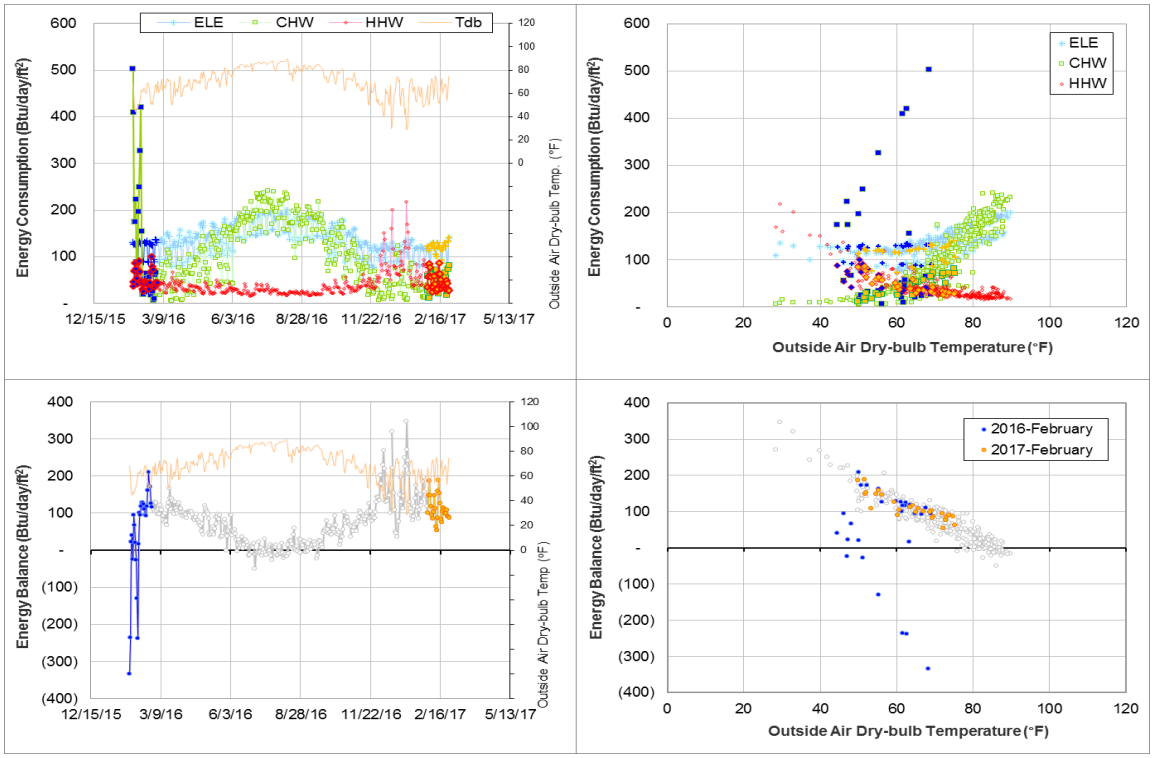
## *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| Energy Balance | The cross-point temperature is high, ~85°F. | 7/1/2014-ongoing |
| CHW | The consumption level might be low compared to the ELE and HHW use level. | Since the data became available on 7/1/2012. |

## *Comments*

The electricity is not available until 7/1/2014. CHW consumption level might be low compared to the ELE and HHW use level. But the CHW consumption level has been stable since the data became available on 7/1/2012. More information might be needed to help identify which type energy causes the high cross-point temperature.

## *Explanatory Figure: 13 months energy balance plot with original data*



# Veterinary Research Building (TAMU Bldg# 1197)

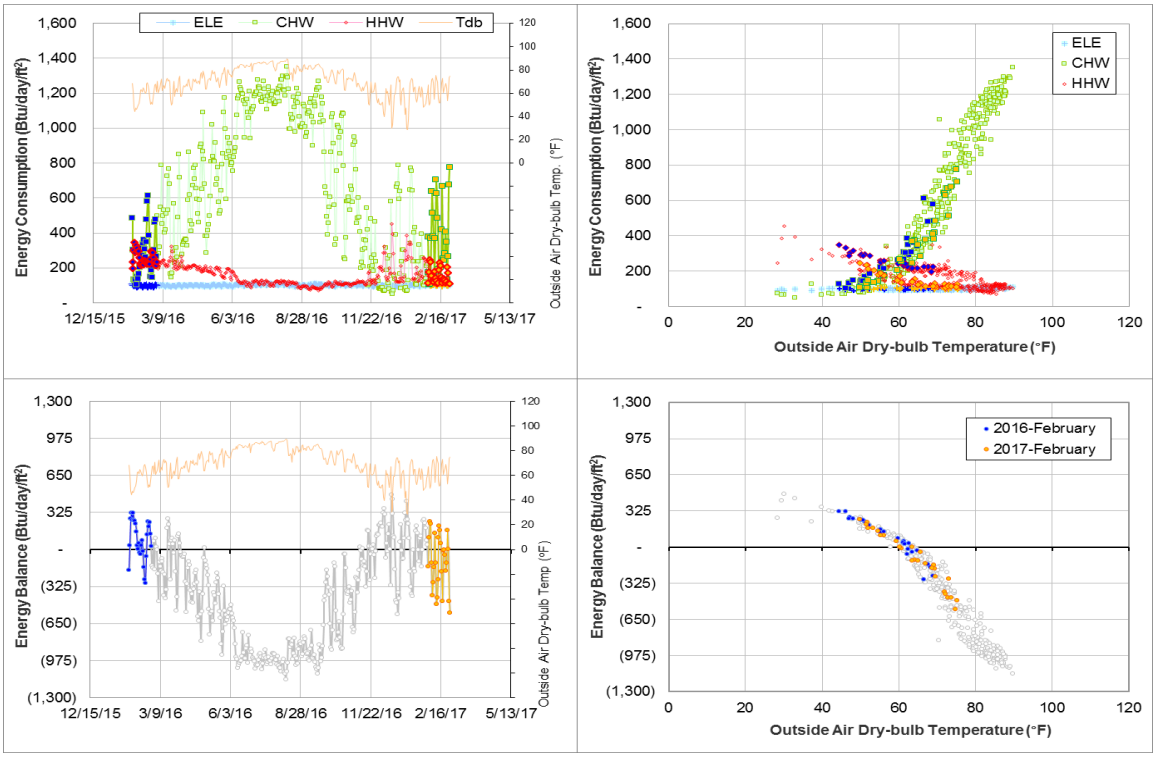
## *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| ELE | The consumption is low for a laboratory building. | Since January 2010 when the meter was added to this report |

## *Comments*

The whole building hourly electricity use is in the range 120 kWh to 160 kWh (1.05 W/ft$^2$ to 1.40 W/ft$^2$), which is low for a veterinary laboratory building on the campus. This seems to be the reason for the low level of the energy balance load. The temperature-axis intercept of the energy balance is around 62°F.

## *Explanatory Figure: 13 months energy balance plot with original data*



# Reynolds Medical Sciences Building (TAMU Bldg# 1504)

## *Detected issues in the energy balance and/or the consumption data*

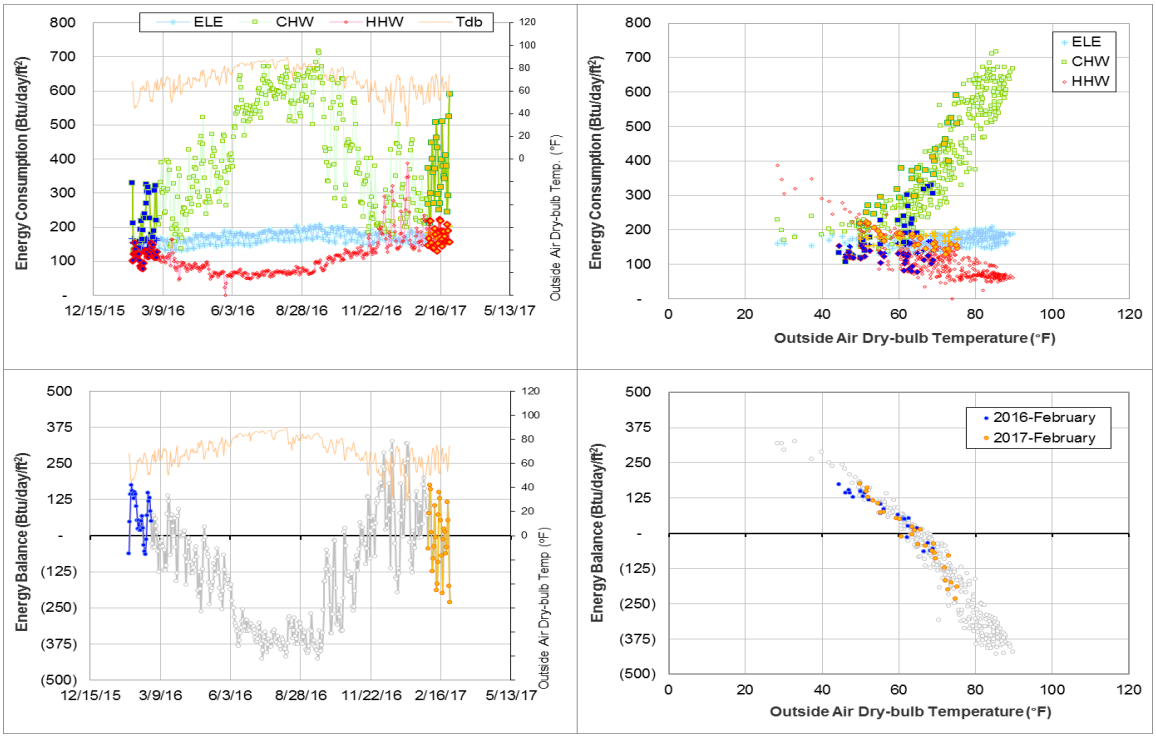
| Data Type | Description of data behaviors | Period |
|---|---|---|
| ELE | Increase in energy consumption pattern. | September 2016 – Ongoing |
| CHW | Slight increase in energy consumption pattern. | September 2016 – Ongoing |
| HHW | Increase in energy consumption pattern | September 2016 – Ongoing |

## *Comments*

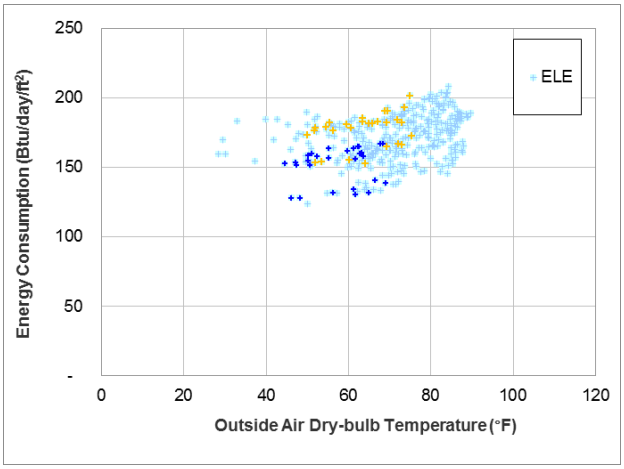
The HHW energy consumption pattern has increased by approximately 40 Btu/day/ft$^2$ starting in September 2016. Around the same time, the CHW and ELE energy consumption also shows a slight increase. Even though the energy consumption has increased, the energy balance for the building is still within the range of the previous months. It does not seem to be a metering problem.

Recently in December 2016, the increase in ELE consumption pattern has been more significant, especially in the lower temperature range. Please see explanatory figure below for a plot of just the ELE consumption pattern.

## *Explanatory Figure: 13 months energy balance plot with original data*



***Explanatory Figure: 13 months energy consumption plot for ELE with original data***



# Nuclear Magnetic Resonance Facility (TAMU Bldg# 1525)

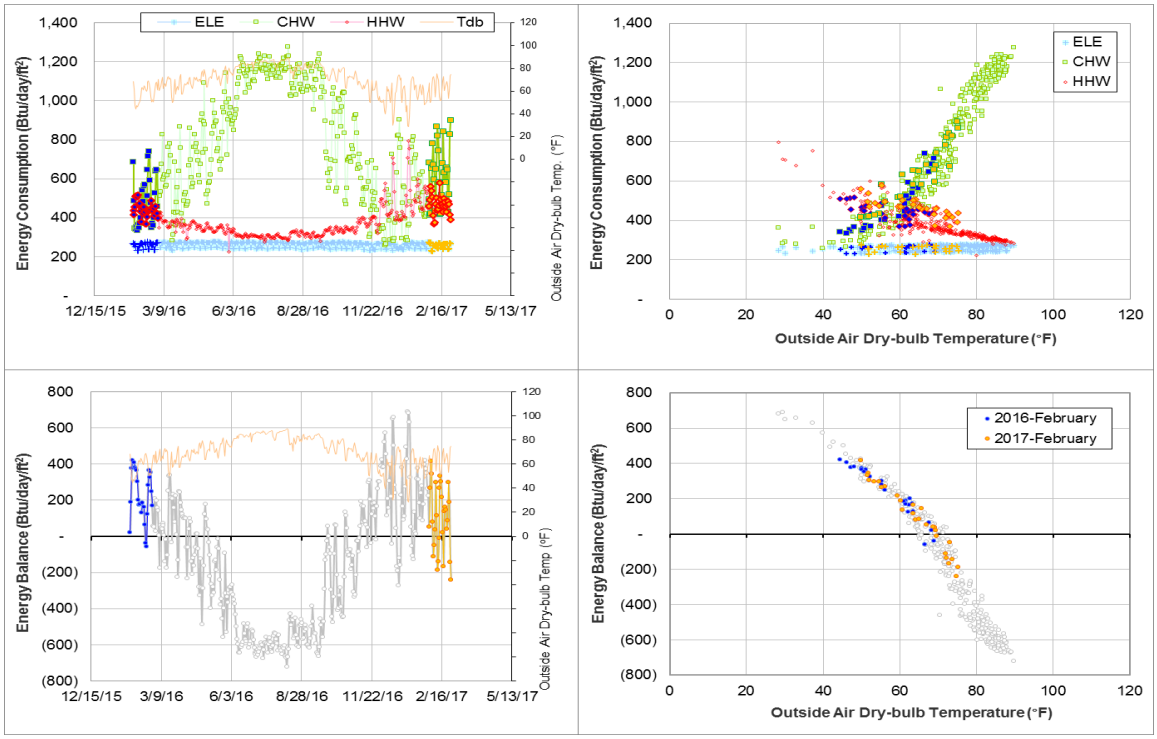
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| HHW | Increase in energy consumption pattern. | December 2016 – Ongoing |

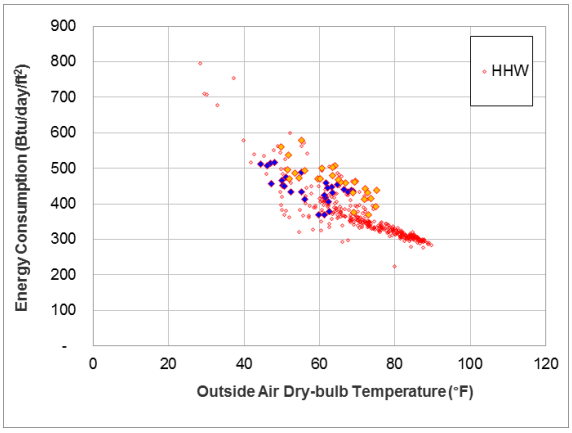
### *Comments*

Recently in December 2016, the HHW pattern has started to increase by about 70-100 Btu/day/ft$^2$ with the larger difference appearing in warmer temperatures. However, the energy balance has maintained the same pattern, so it does not appear to be metering problem.

### *Explanatory Figure: 13 months energy balance plot with original data*




### *Explanatory Figure: 13 months energy consumption plot for HHW with original data*



# Agriculture Public Building (TAMU Bldg# 1537)

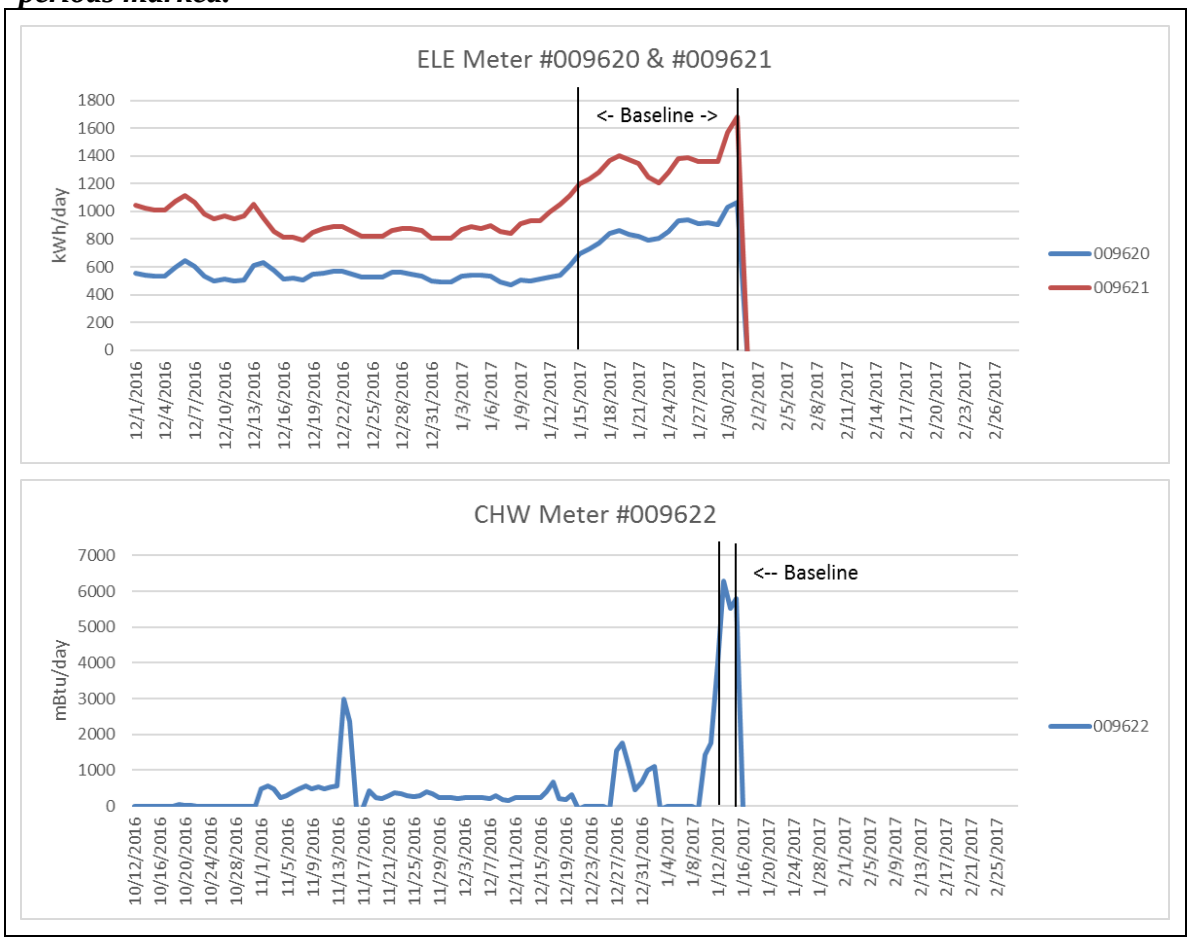
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| ELE, CHW, and HHW | Limited data available for baseline period. | February 2017 |

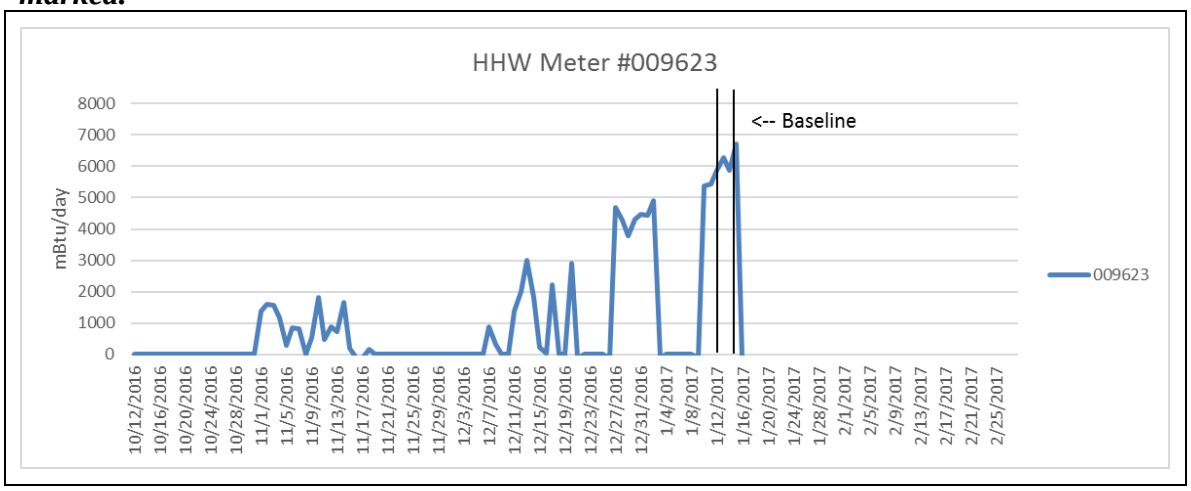
### *Comments*

The Agriculture Public Building is a new building that was still under construction in January 2017. The ELE, CHW, and HHW data only recently became available, and it is limited to 2-3 months of data. Due to the construction, the consumption levels during these 2-3 months is not steady but continues to increase. To estimate the consumption for February, an average was calculated using the last few days of available data in order to capture highest level of consumption for each meter. The below plots show the period used estimating the February consumption. The baseline for ELE meter #009620 is 1/15/2017 – 1/31/2017 (17 days) with an average of 11 W/day/ft$^2$. The baseline for ELE meter #009621 is 1/15/2017 – 1/31/2017 (17 days) with an average of 17.3 W/day/ft$^2$. The baseline for CHW meter #009622 is 1/12/2017 – 1/15/2017 (4 days) with an average of 68.9 Btu/day/ft$^2$. The baseline for HHW meter #009623 is 1/12/2017 – 1/15/2017 (4 days) with an average of 78.8 Btu/day/ft$^2$.

### *Explanatory Figure: Time series plot of available ELE, and CHW data with baseline periods marked.*



***Explanatory Figure: Time series plot of available HHW data with baseline period marked.***



# Cox-McFerrin Center for Aggie Basketball (TAMU Bldg# 1558)

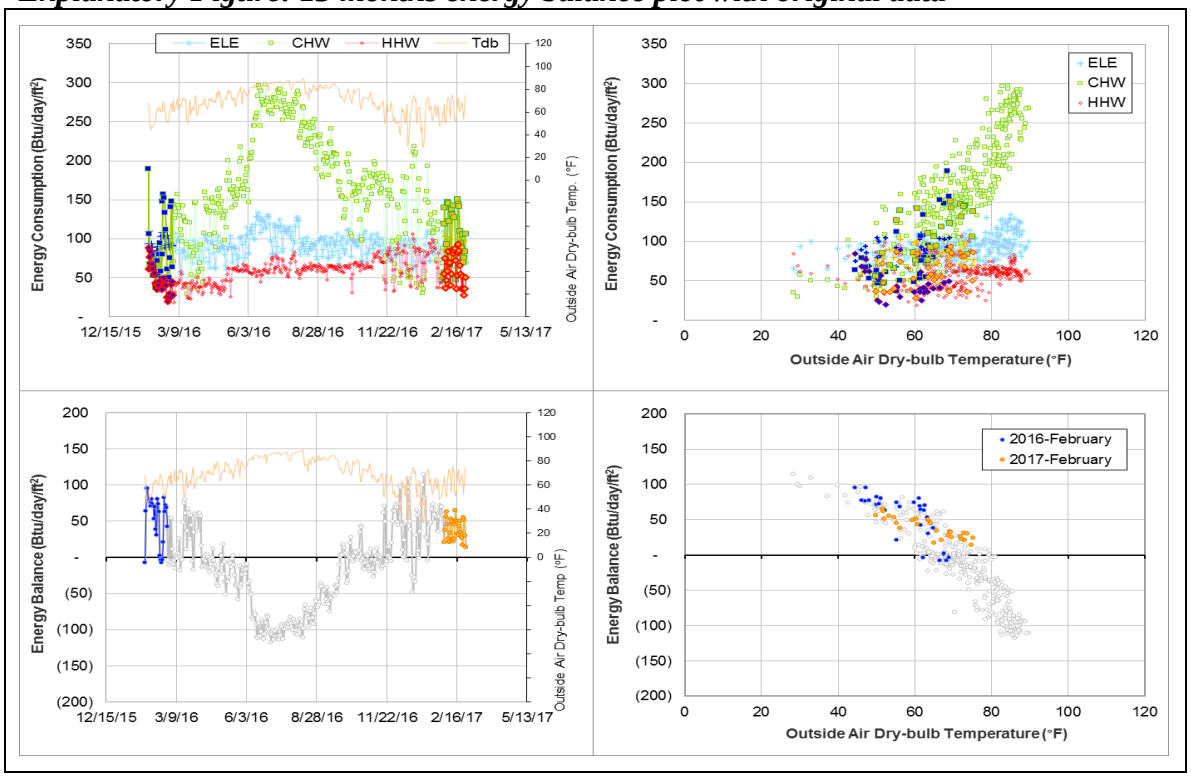
## *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| HHW | Consumption pattern is not weather dependent. | 11/5/2016 – Ongoing |

## *Comments*

On 11/5/2016, the CHW and HHW energy consumption patterns appeared to be shifting to a higher level. The CHW consumption showed an increase in warmer temperatures by about 40 Btu/day/ft$^2$, and the HHW consumption showed an increase of 10 – 15 Btu/day/ft$^2$. In January 2017, the CHW pattern appears to be shifting back to its previous pattern. However, the HHW pattern still remains scattered and does not appear to be weather dependent.

## *Explanatory Figure: 13 months energy balance plot with original data*



# West Campus Parking Garage (TAMU Bldg# 1559)

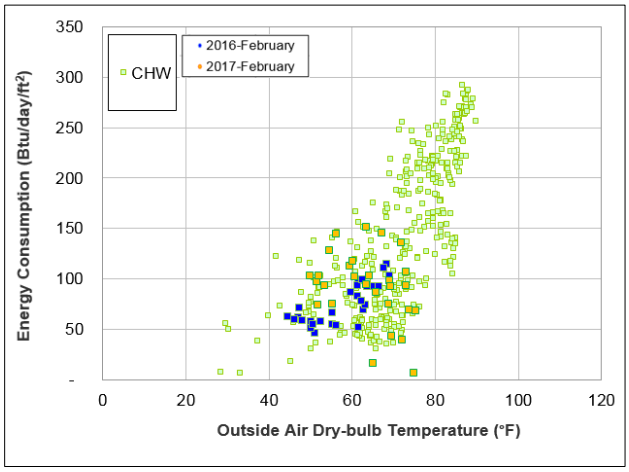
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | Pattern is scattered | February 2017 |

### *Comments*

The CHW pattern appears to be scattered and independent of weather this month.

### *Explanatory Figure: 13 months plot of CHW data*



# Student Recreation Center (TAMU Bldg# 1560)

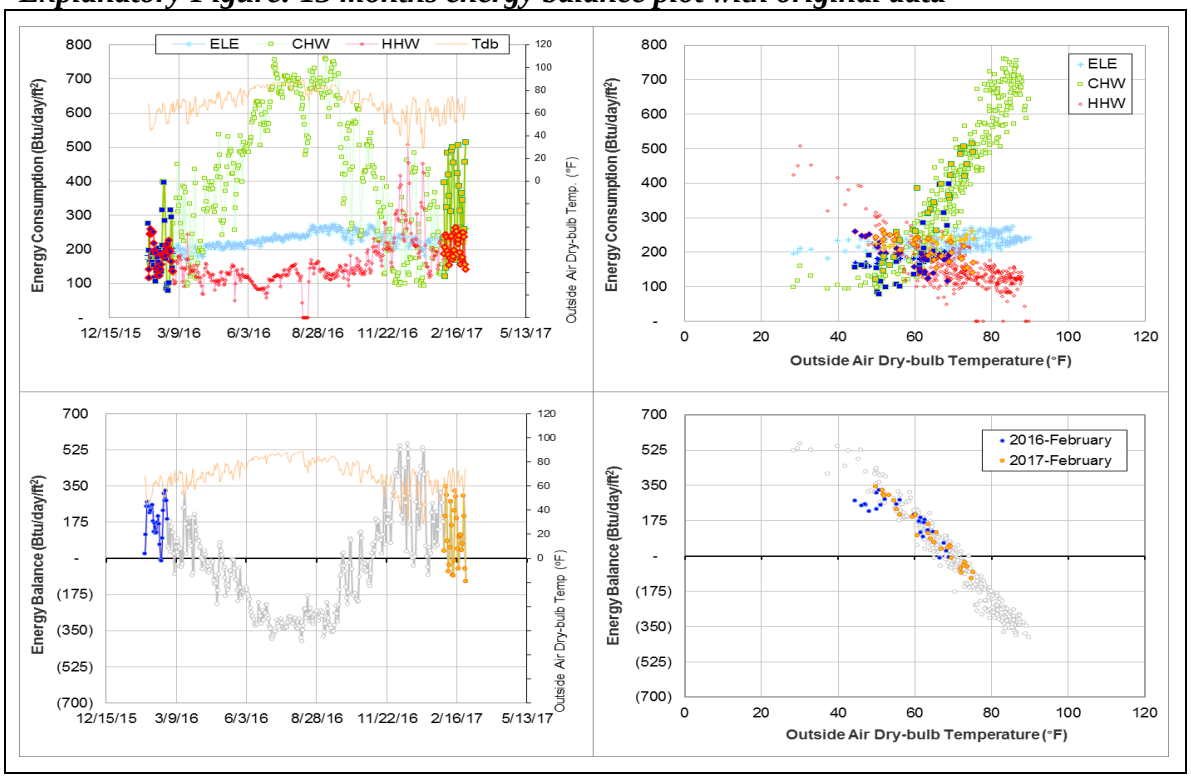
## *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| ELE, CHW, HHW | Increase in energy consumption pattern | 11/5/2016 – Ongoing |
| Energy Balance | Change in pattern slope for cooler temperatures | 11/5/2016 – Ongoing |

## *Comments*

The consumption patterns for ELE, CHW, and HHW are showing a slight increase. The energy balance pattern is also showing an increase in energy in the lower temperature range.

## *Explanatory Figure: 13 months energy balance plot with original data*



# International Ocean Discovery Building (TAMU Bldg# 1601)

## *Detected issues in the energy balance and/or the consumption data*

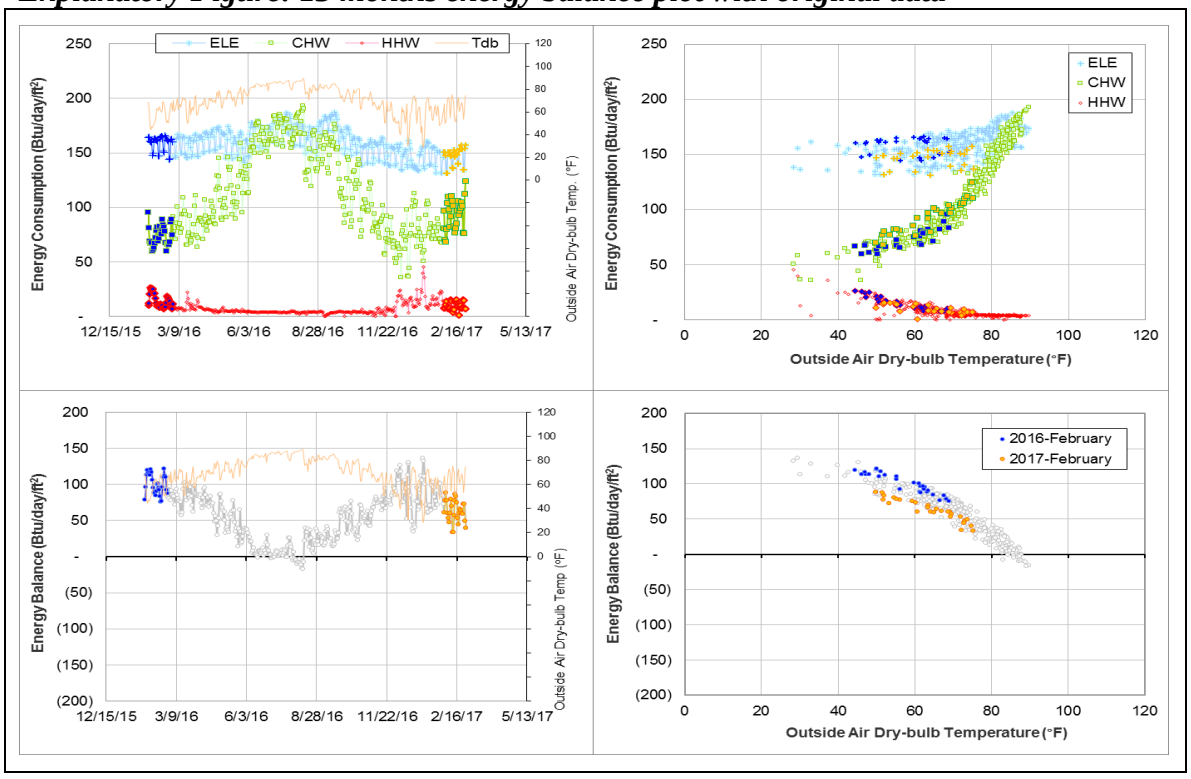
| Data Type | Description of data behaviors | Period |
|---|---|---|
| Energy Balance | The cross-point is high, around 85°F. | Since data became available in Feb 2015 |

## *Comments*

The cross-point temperature is high for this building, around 85°F. The daily CHW consumption for last year is 36 – 200 Btu/day/ft$^2$. The CHW consumption level is low compared to ELE and HHW levels. This building might have its own chillers.

Recently, the ELE consumption appears to have dropped compared to the same month last year, and the CHW is showing a slight increase. The energy balance is also decreasing and may have a lower cross-point temperature. We will not know for sure until the warmer months.

## *Explanatory Figure: 13 months energy balance plot with original data*



# Offshore Technology Research Center (TAMU Bldg# 1604)

### *Detected issues in the energy balance and/or the consumption data*

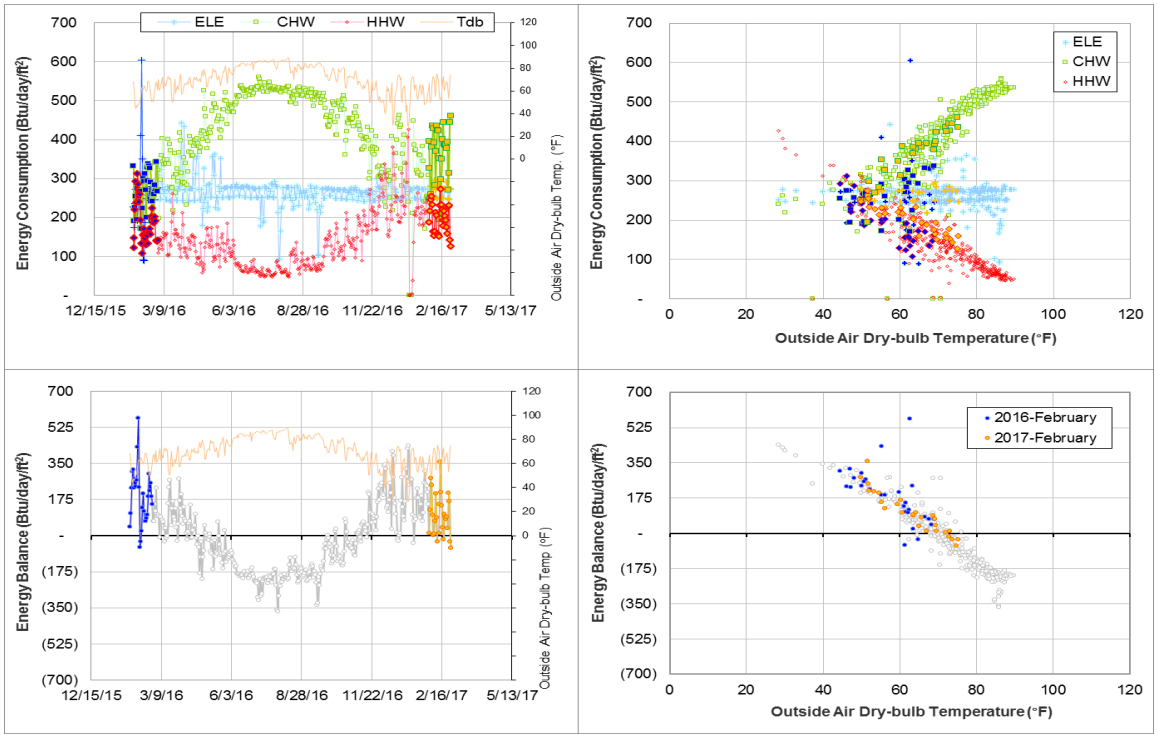
| Data Type | Description of data behaviors | Period |
|---|---|---|
| ELE #006660 | Consumption is zero for most of the time. | 2/1/2015 – Ongoing |
| CHW and HHW | The consumption level is higher than that of last year. | 5/1/2016 – Ongoing |

### *Comments*

The electric consumption for meter #006660 has been zero for most of the time it has been available since 2/1/2015. Does this meter measure consumption for a specific piece of equipment that only run occasionally?

New consumption patterns appear to be developing starting May 2016. The CHW consumption level is showing an overall increase, most notably in the warmer months. The HHW consumption level is also showing an increase for warmer temperatures. However, the energy balance maintained the same pattern. It does not appear to be metering problem.

### *Explanatory Figure: 13 months energy balance plot with original data*



# TTI Headquarters (TAMU Bldg# 1609)

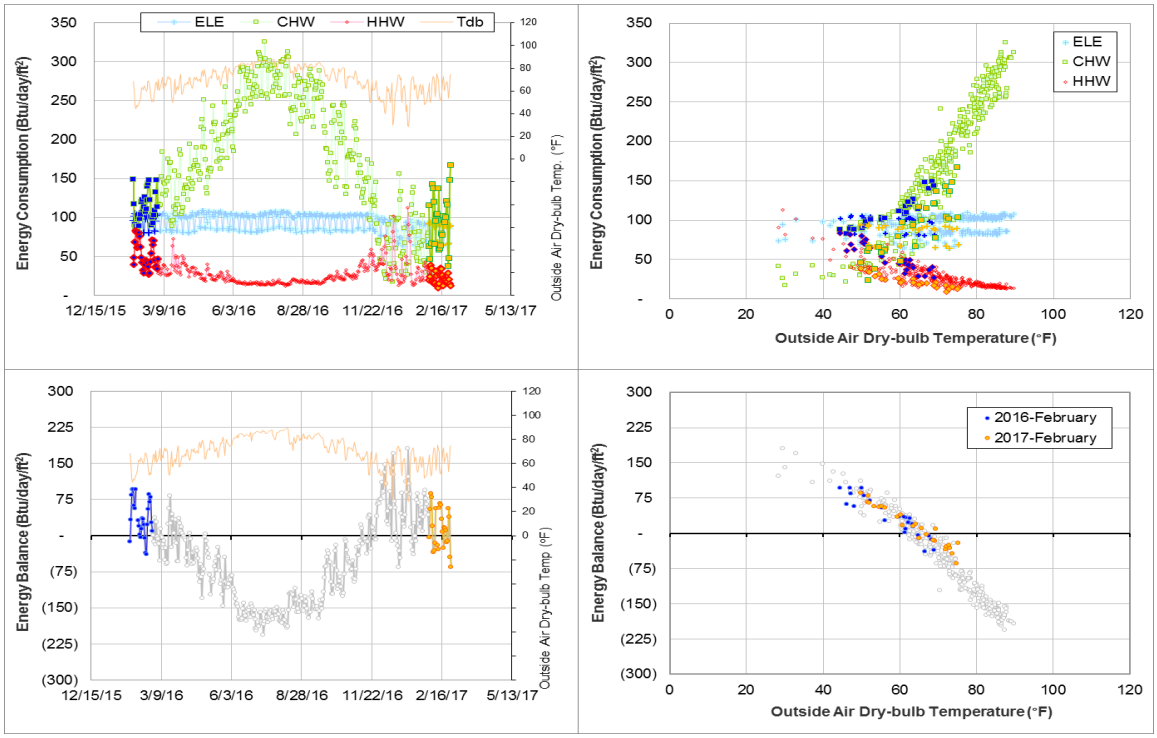
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| CHW | Decrease in energy consumption pattern. | February 2017 |
| HHW | Decrease in energy consumption pattern. | February 2017 |

### *Comments*

The CHW and HHW consumption are showing a decrease compared to the past 13 months. Both CHW and HHW have a very clear pattern. CHW is even showing weekday/weekend pattern. This building is listed as an ESCO building.

### *Explanatory Figure: 13 months energy balance plot with original data*



# National Center for Therapeutics Manufacturing (TAMU Bldg# 1910)

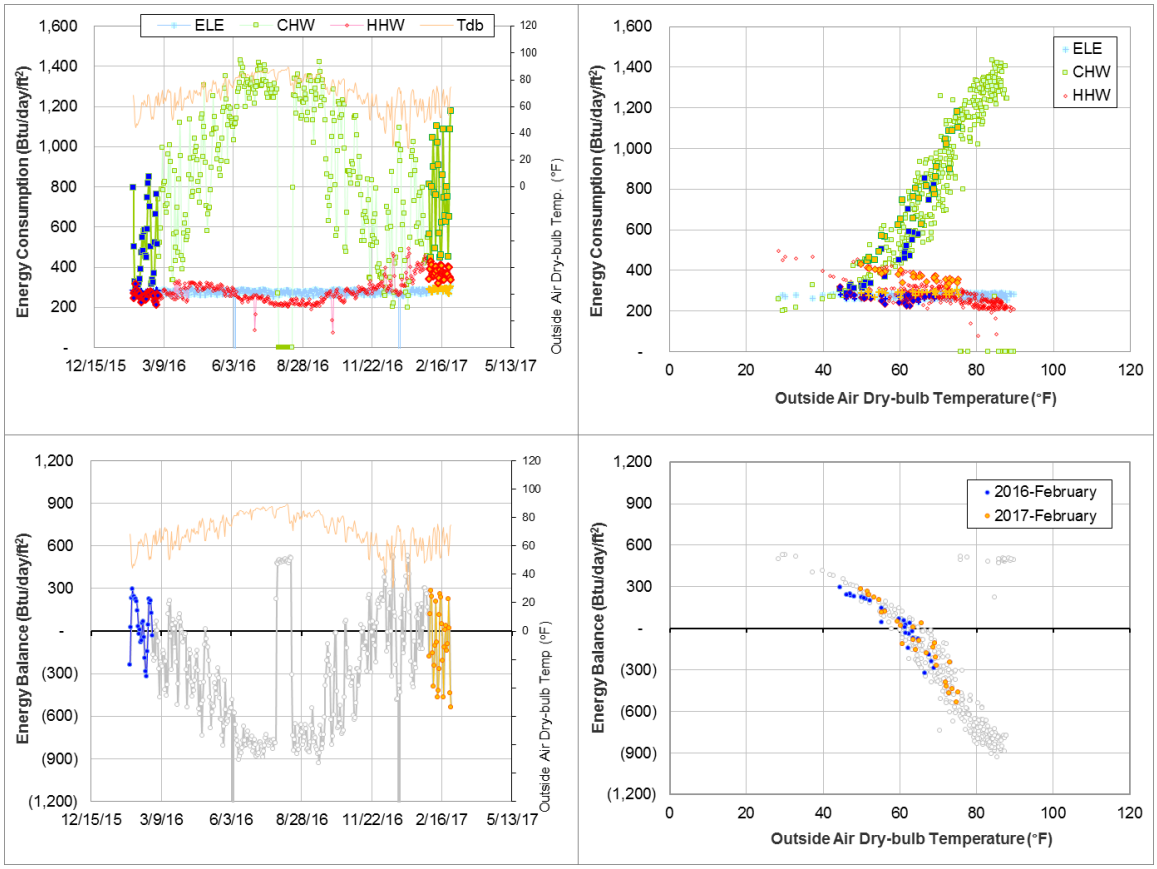
### *Detected issues in the energy balance and/or the consumption data*

| Data Type | Description of data behaviors | Period |
|---|---|---|
| HHW | Increase in energy consumption pattern. | February 2017 |

### *Comments*

The HHW is showing an increase in consumption by about 80-100 Btu/day/ft$^2$. Even with the increase, the energy balance has not changed. It does not appear to be a meter issue.

### *Explanatory Figure: 13 months energy balance plot with original data*



# III. Time Series Plots for February 2017 Consumption

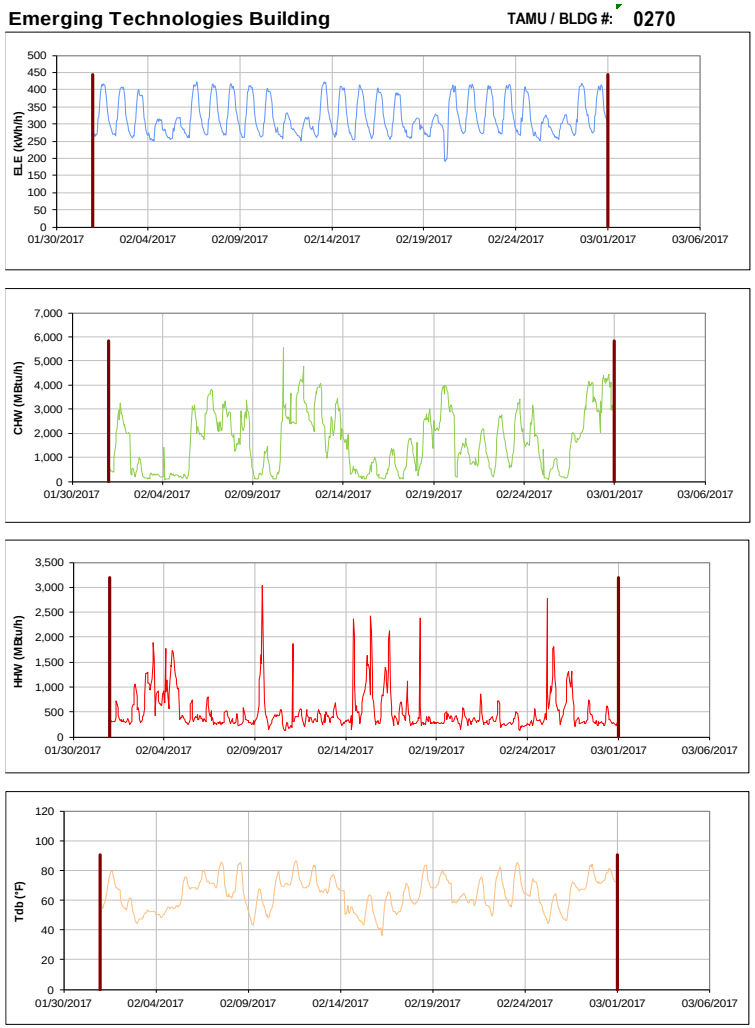



Figure III-1 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Emerging Technologies Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-2 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Liberal Arts and Arts & Humanities Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

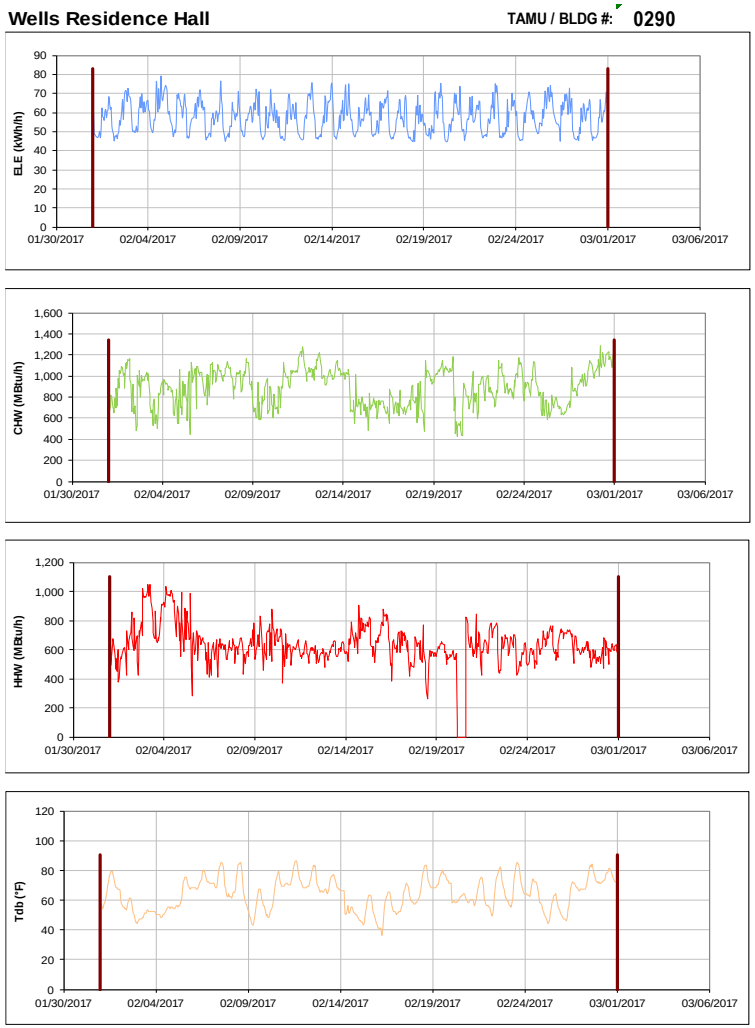



Figure III-3 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Wells Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

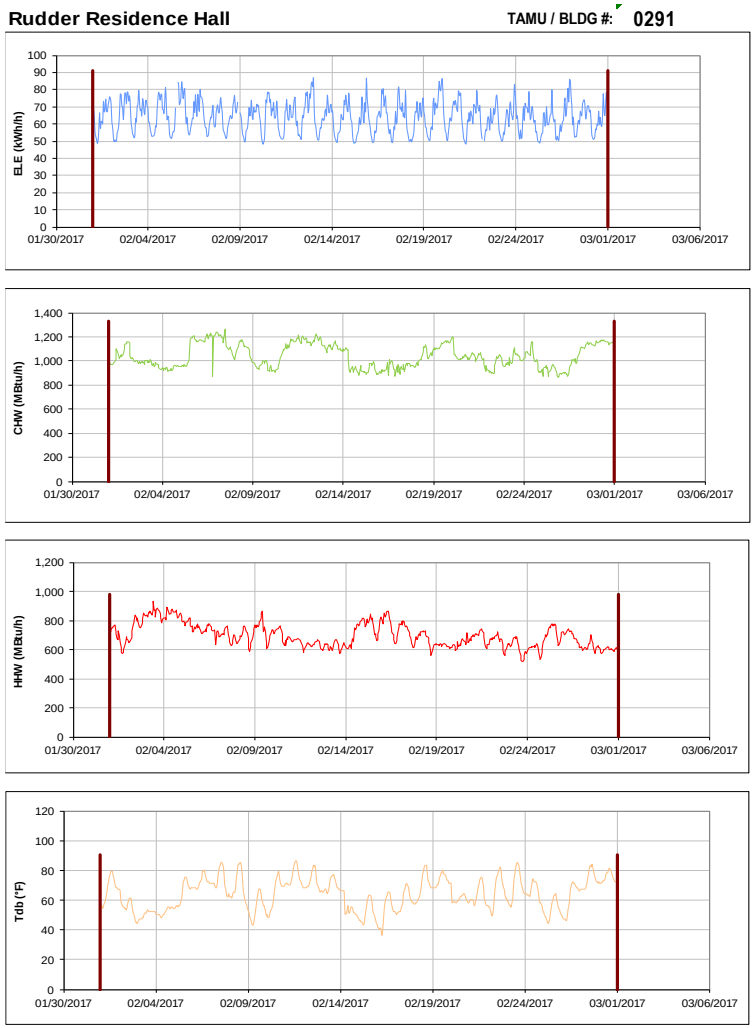



Figure III-4 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

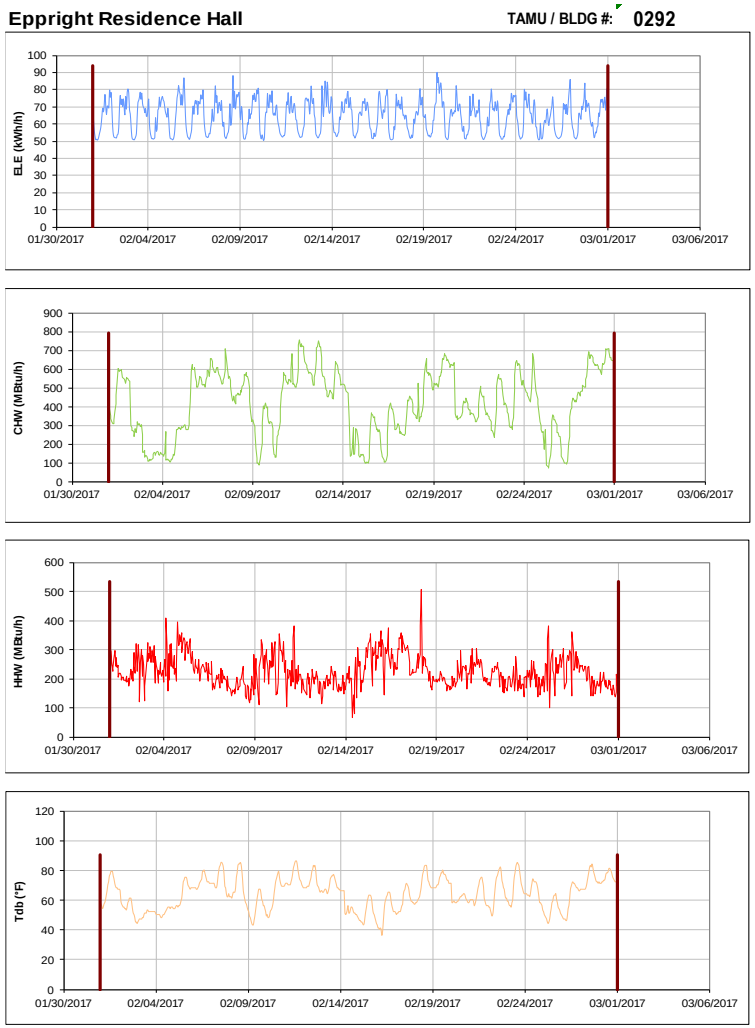



Figure III-5 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Eppright Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

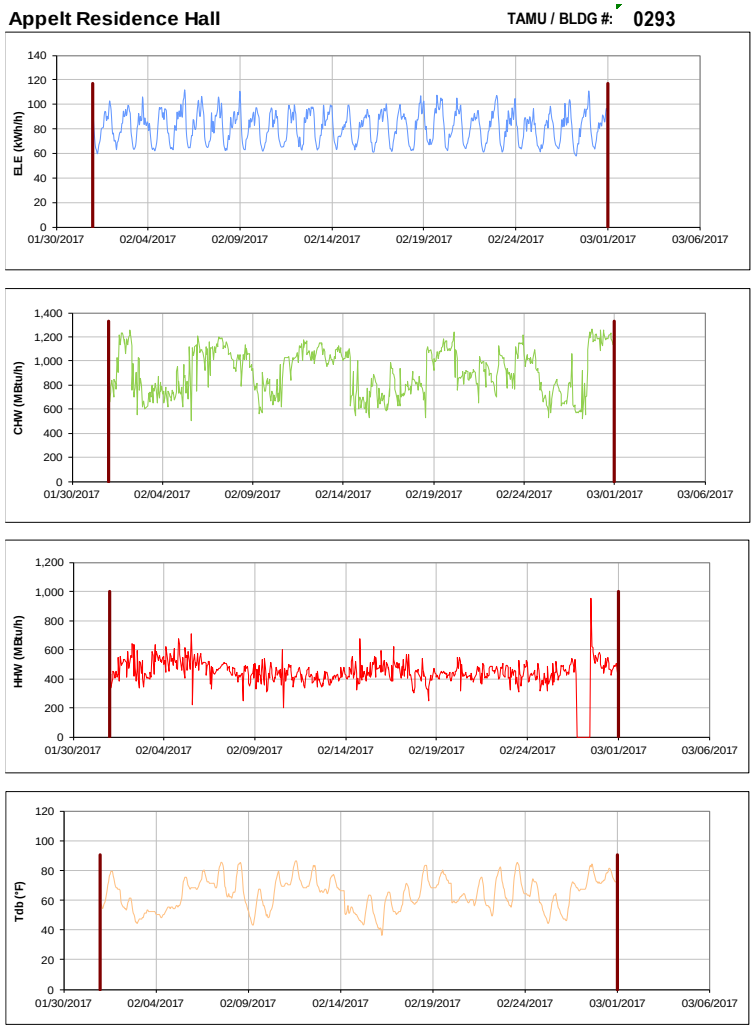



Figure III-6 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Appelt Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

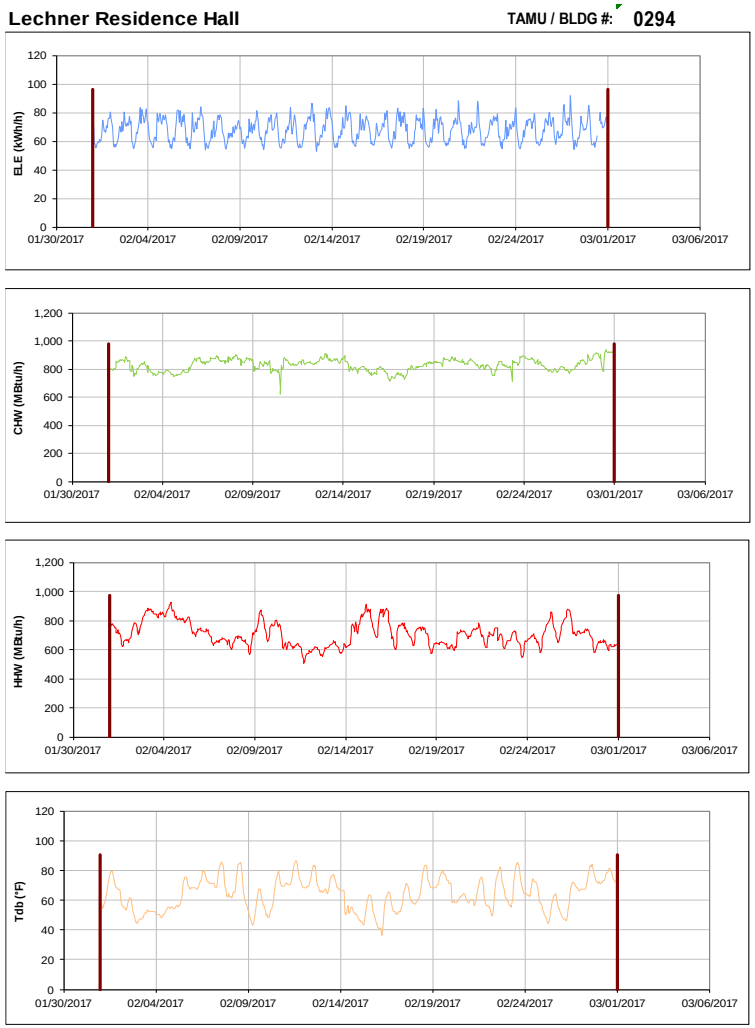



Figure III-7 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Lechner Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

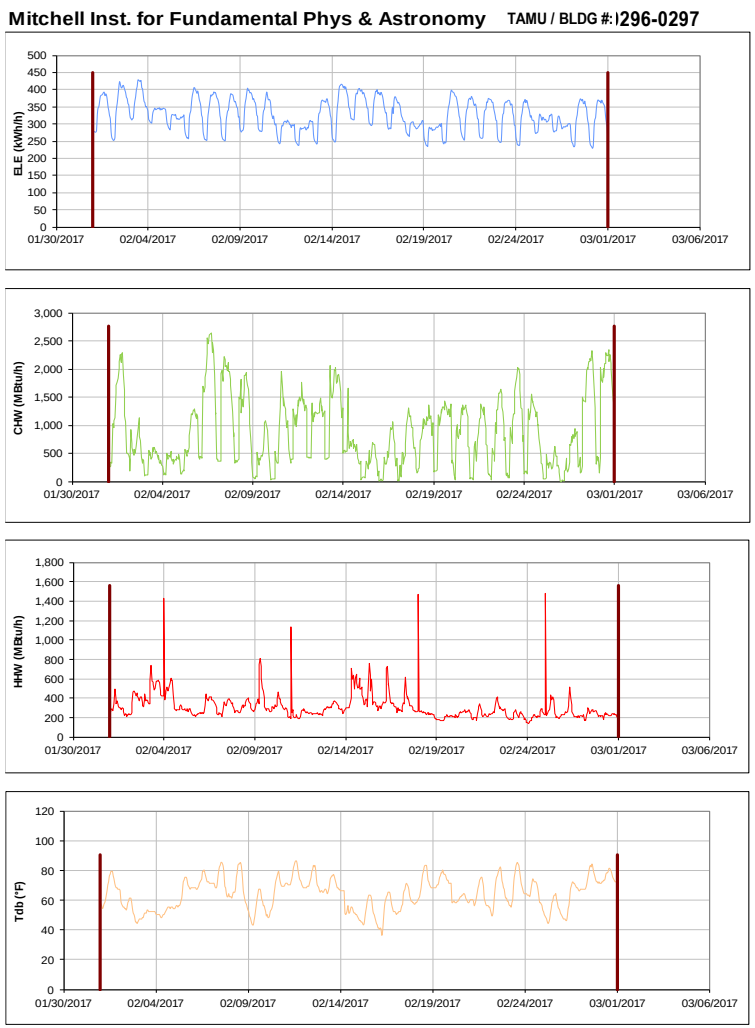



Figure III-8 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Mitchell Inst. for Fundamental Phys & Astronomy during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

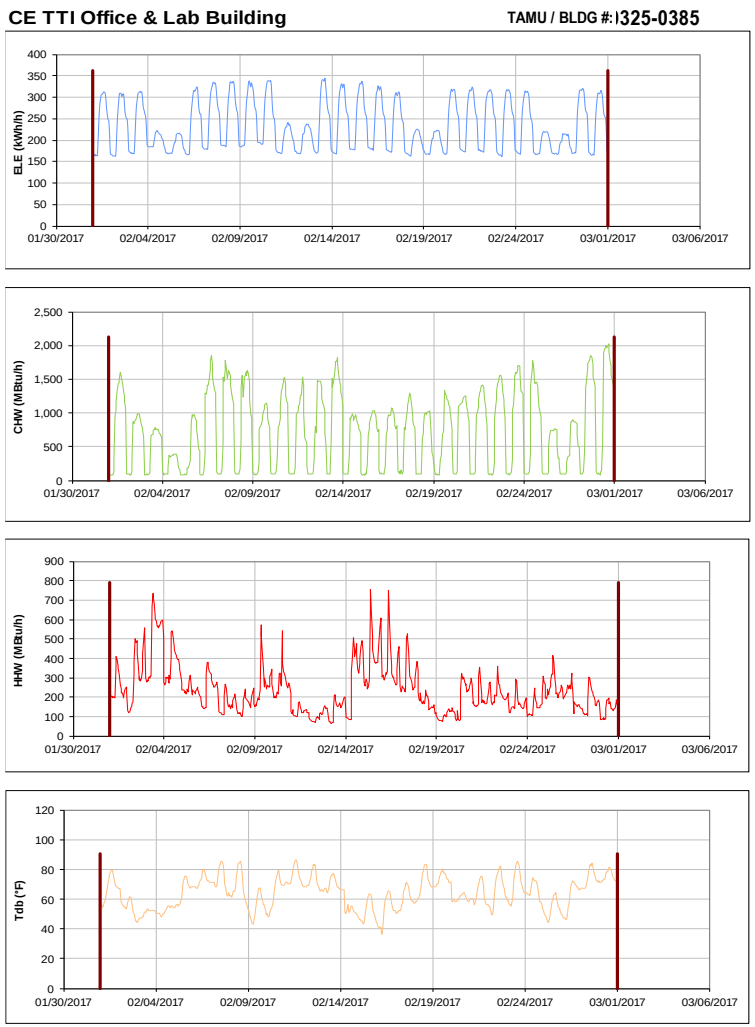



Figure III-9 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for CE TTI Office & Lab Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-10 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Bright Aerospace Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

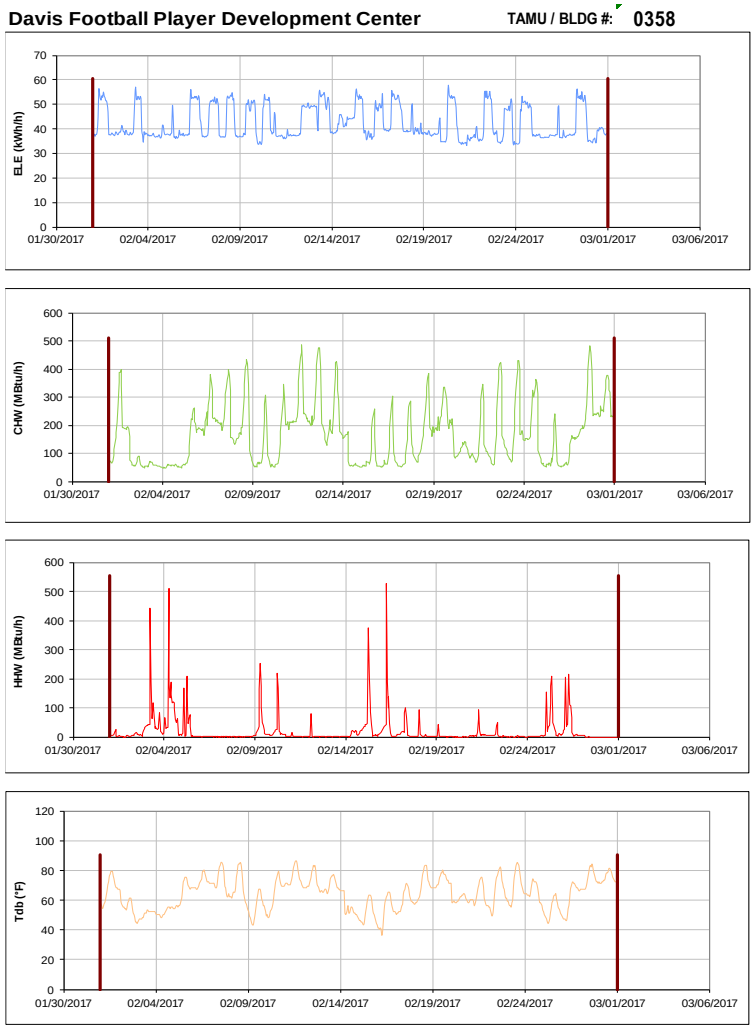



Figure III-11 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Davis Football Player Development Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

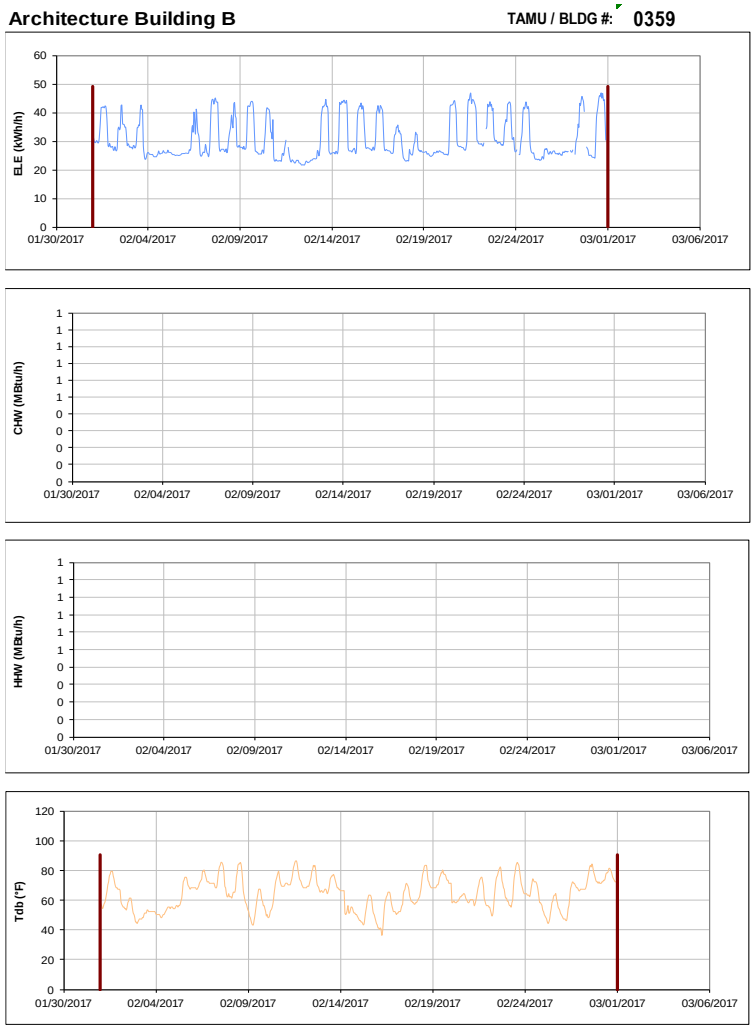



Figure III-12 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Architecture Building B during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

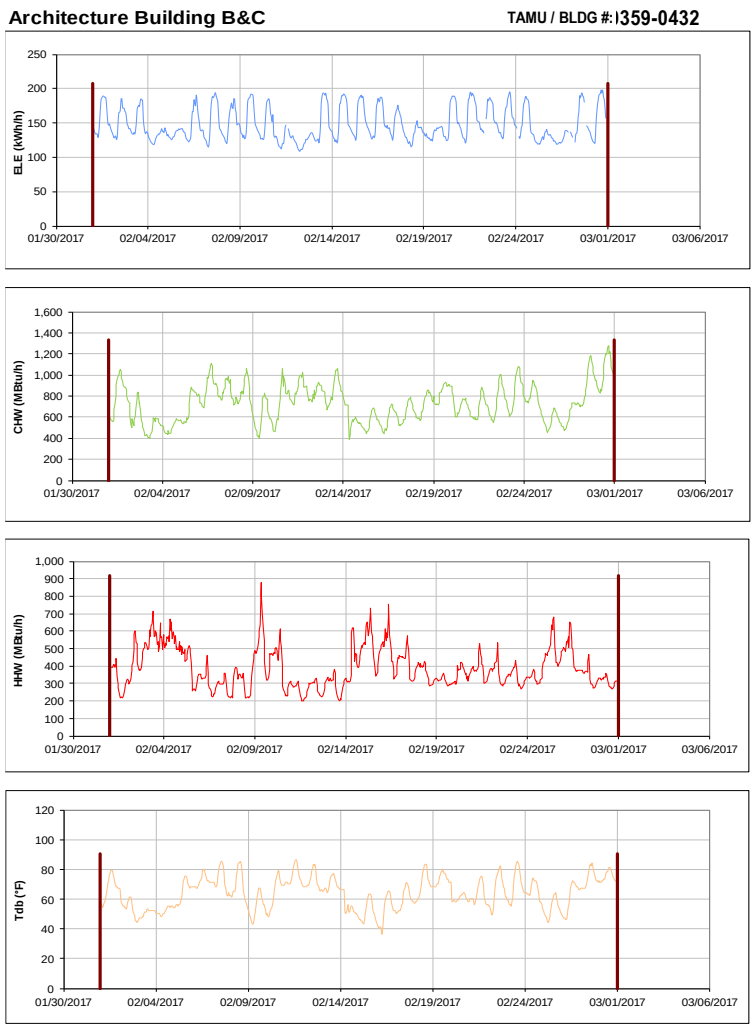



Figure III-13 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Architecture Building B&C during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

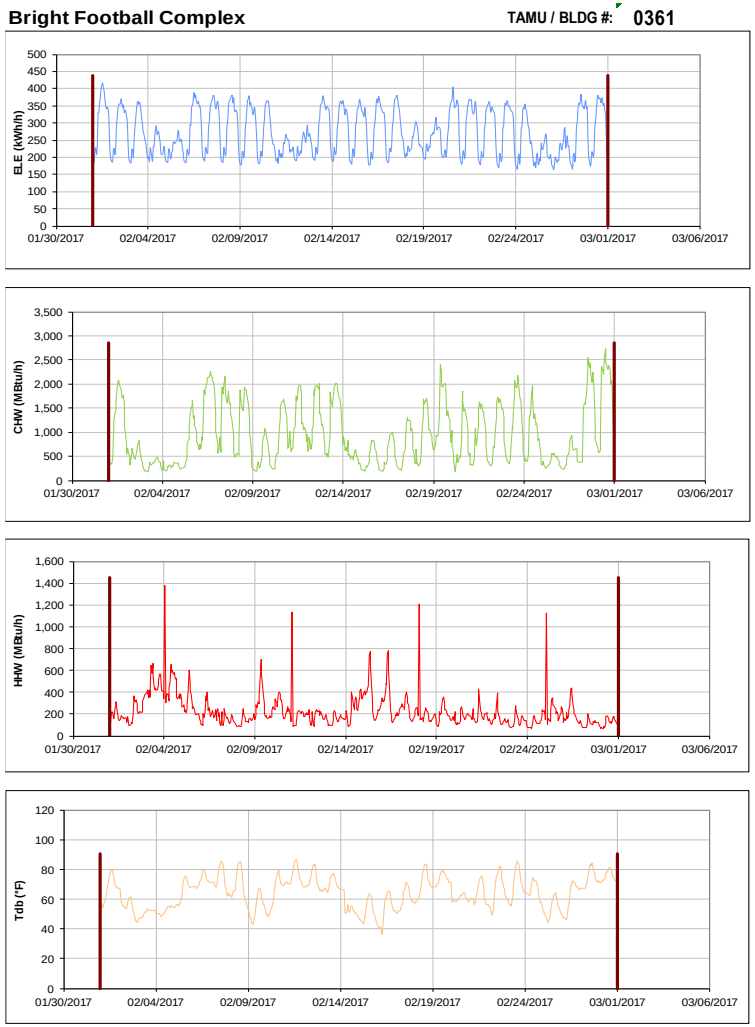



Figure III-14 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Bright Football Complex during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

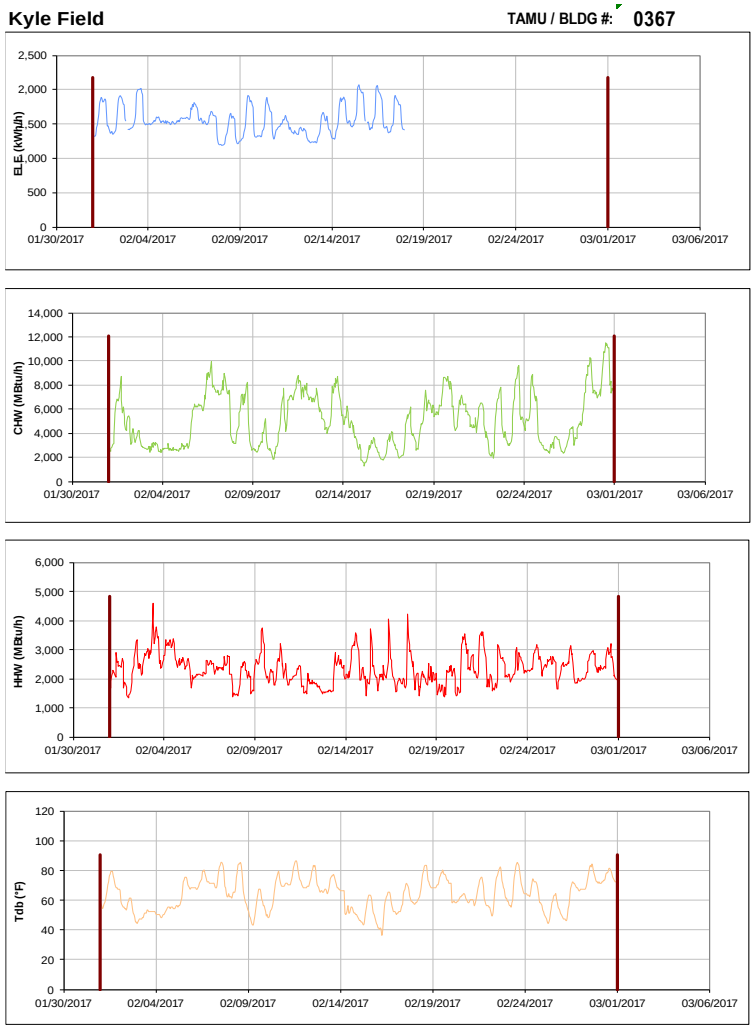



Figure III-15 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kyle Field during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

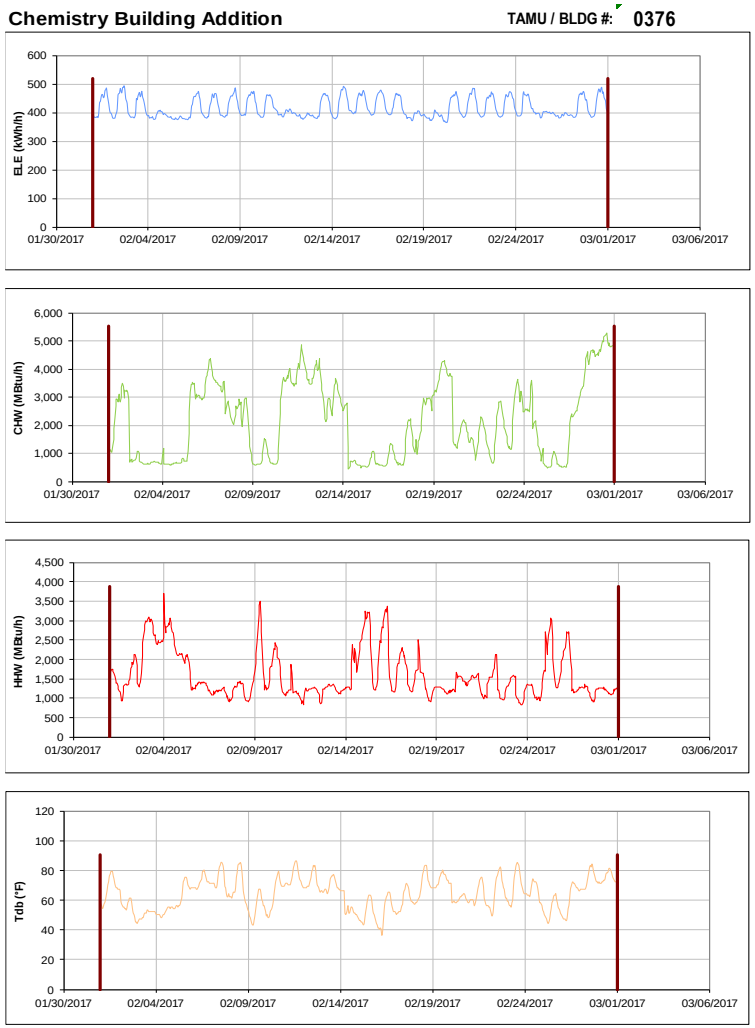



Figure III-16 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Chemistry Building Addition during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

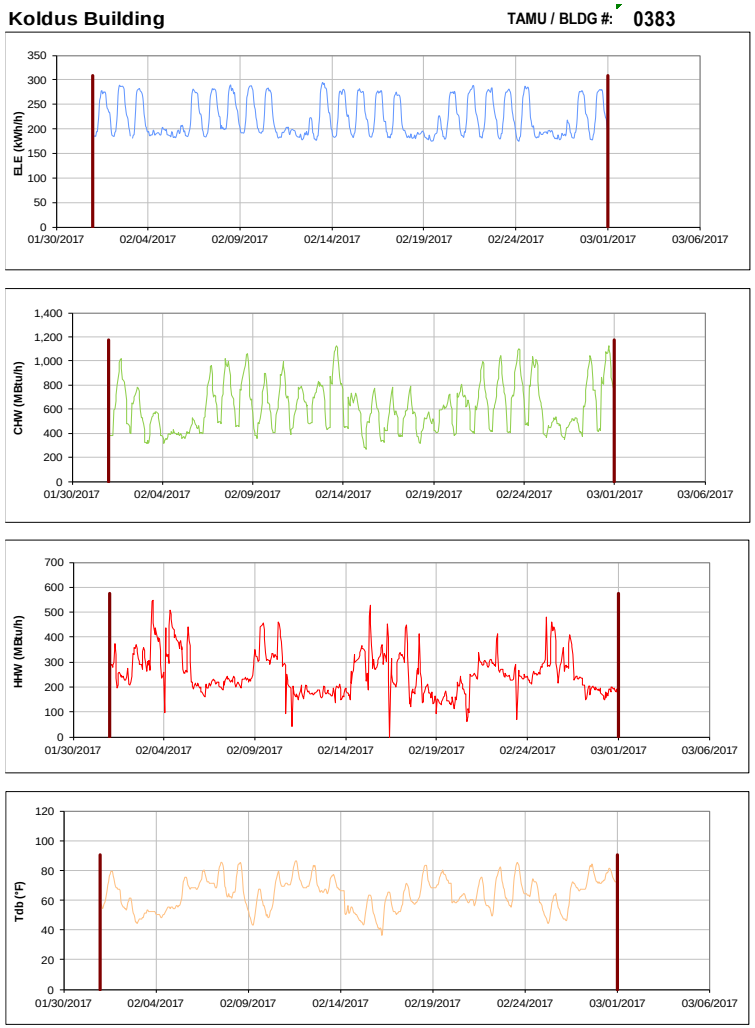



Figure III-17 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Koldus Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

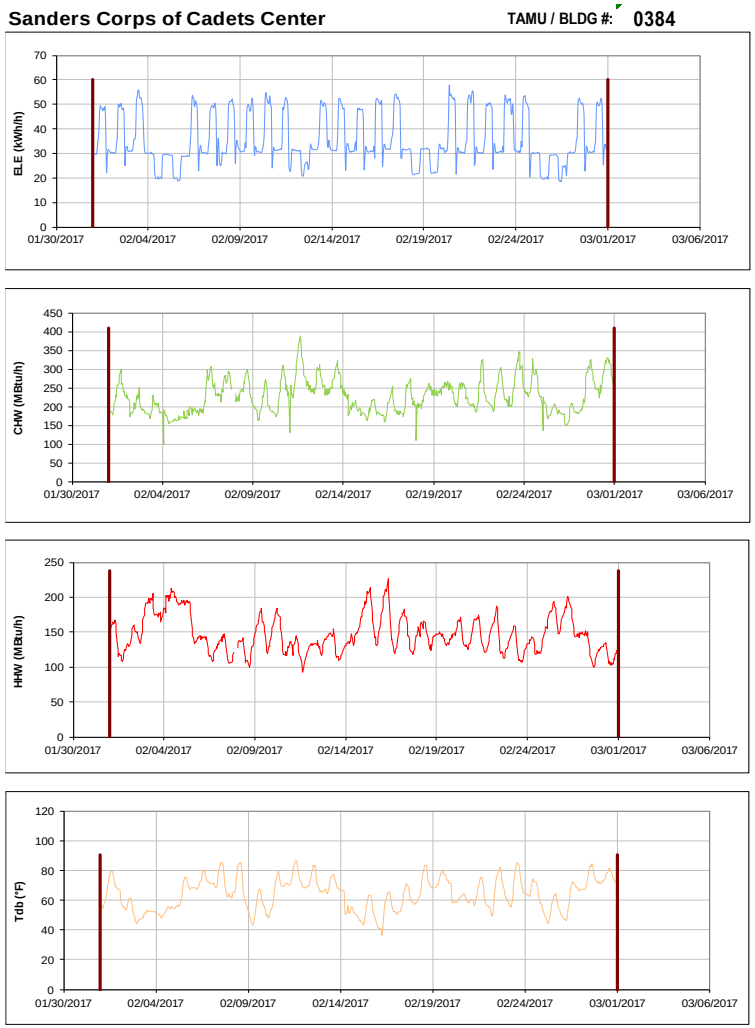



Figure III-18 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Sanders Corps of Cadets Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

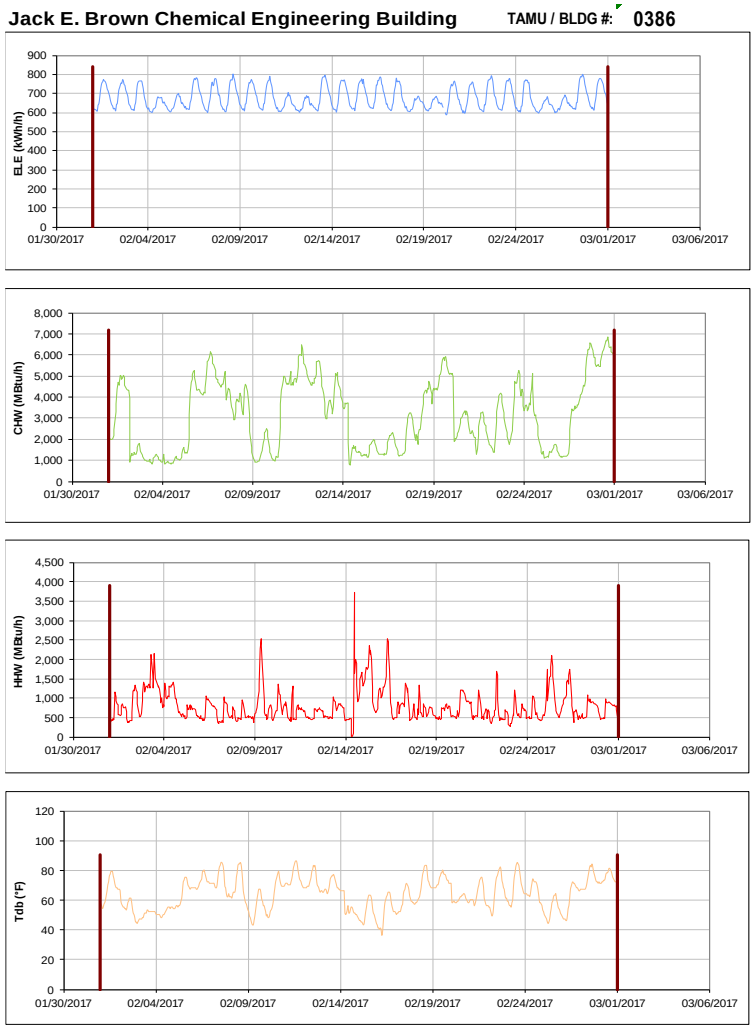



Figure III-19 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Jack E. Brown Chemical Engineering Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

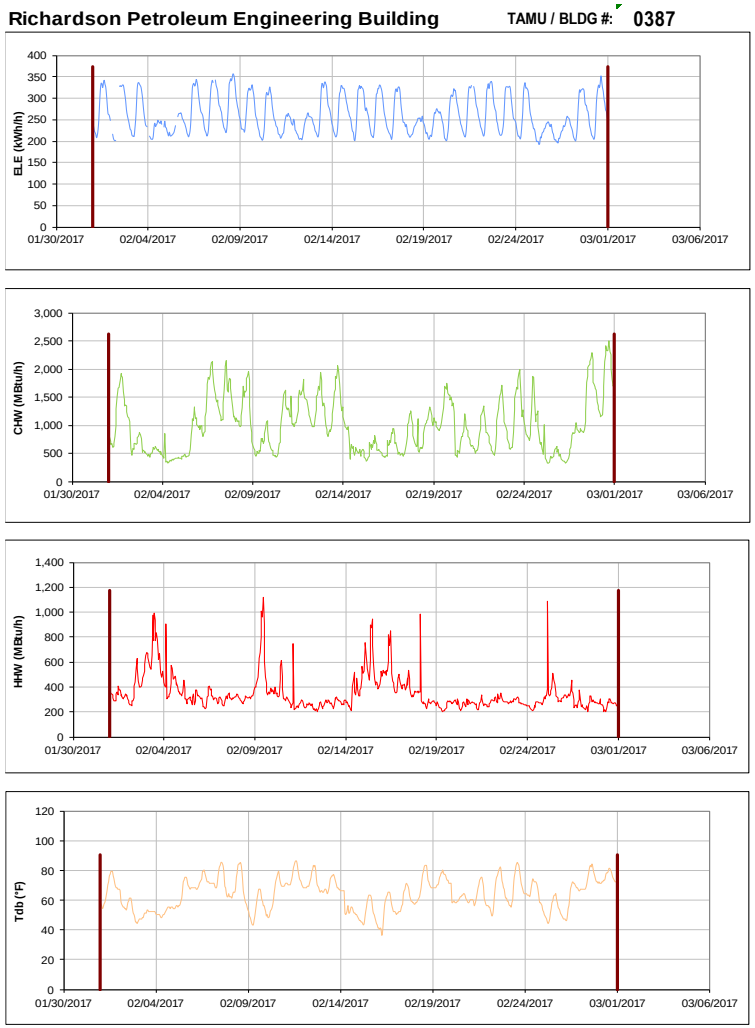



Figure III-20 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Richardson Petroleum Engineering Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

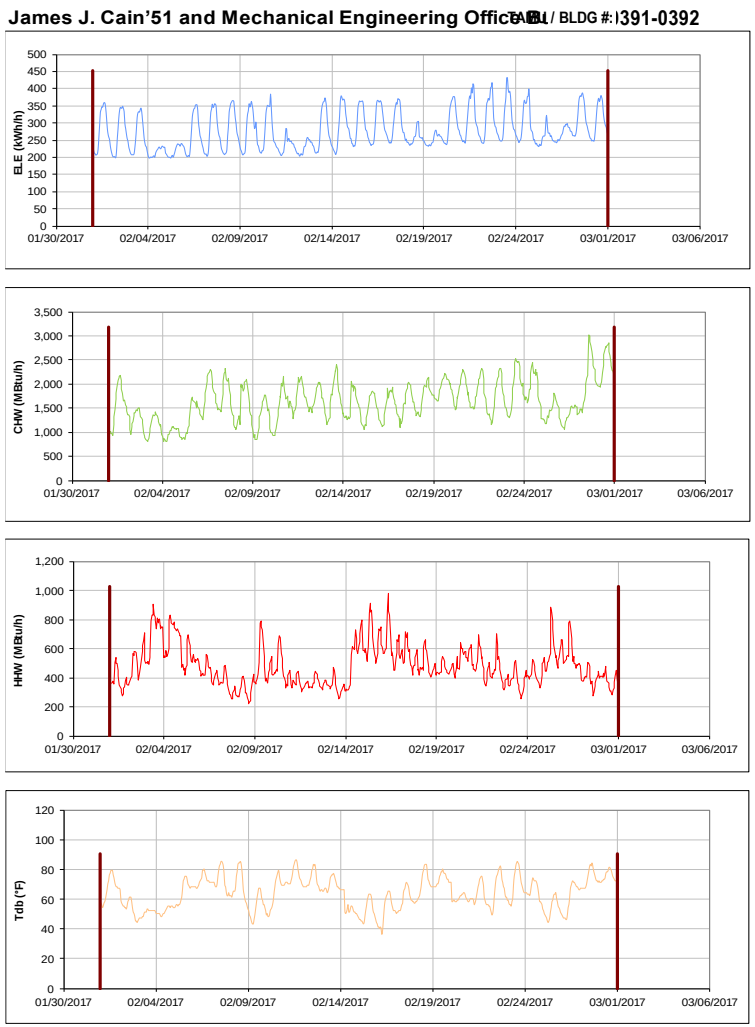



Figure III-21 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for James J. Cain'51 and Mechanical Engineering Office Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station,

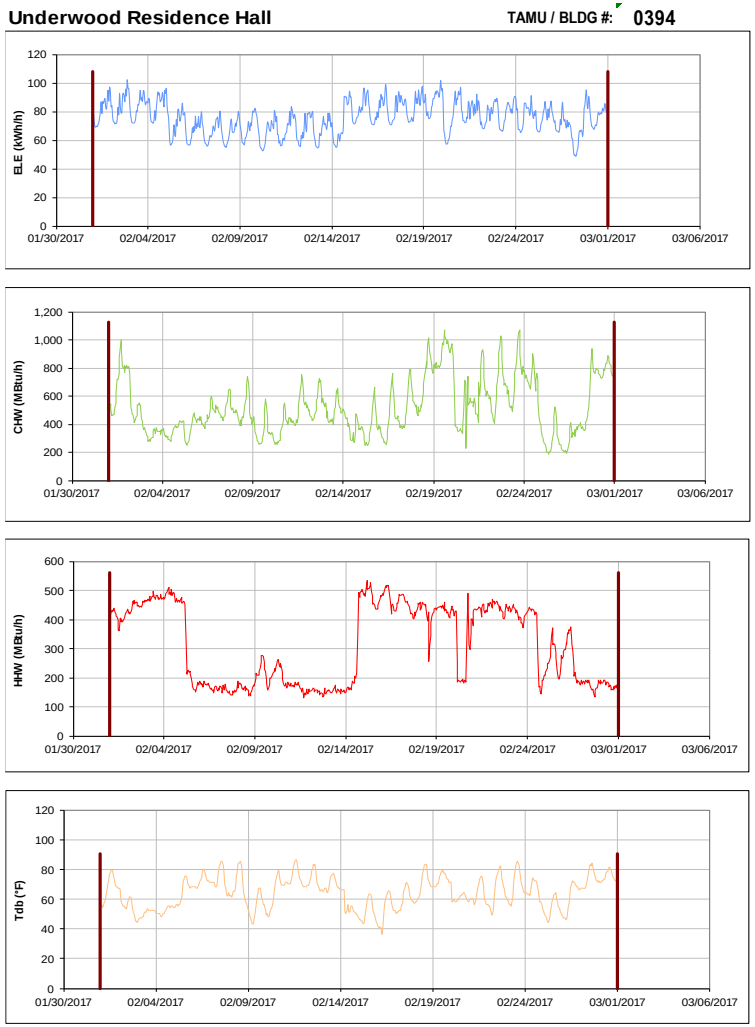



Figure III-22 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Underwood Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

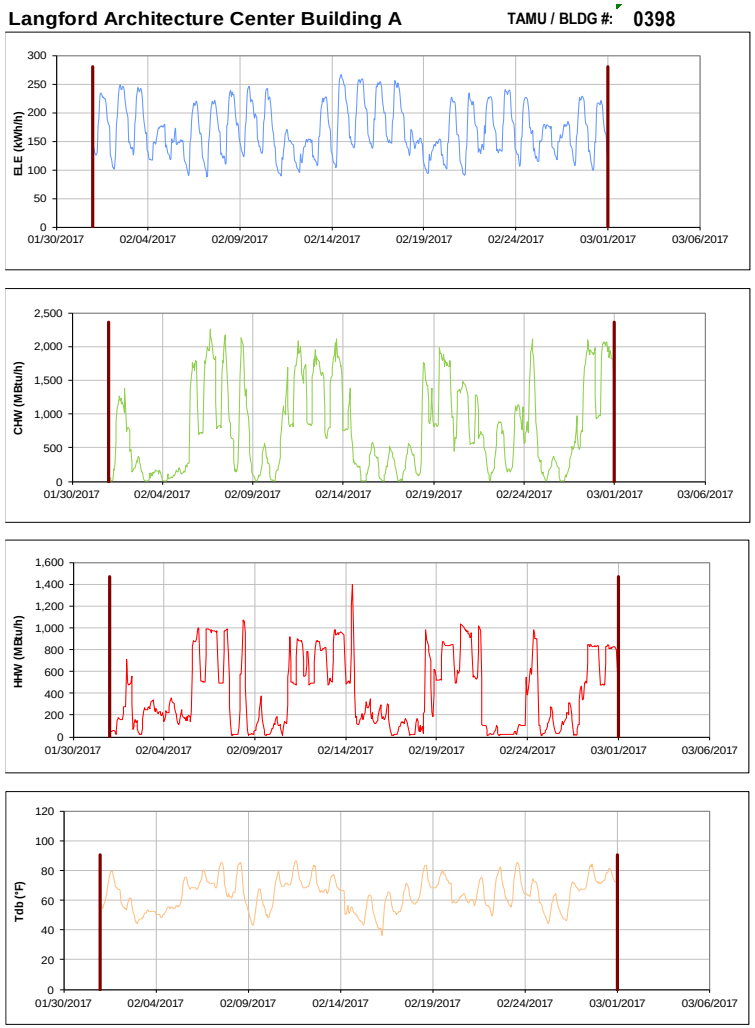



Figure III-23 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Langford Architecture Center Building A during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

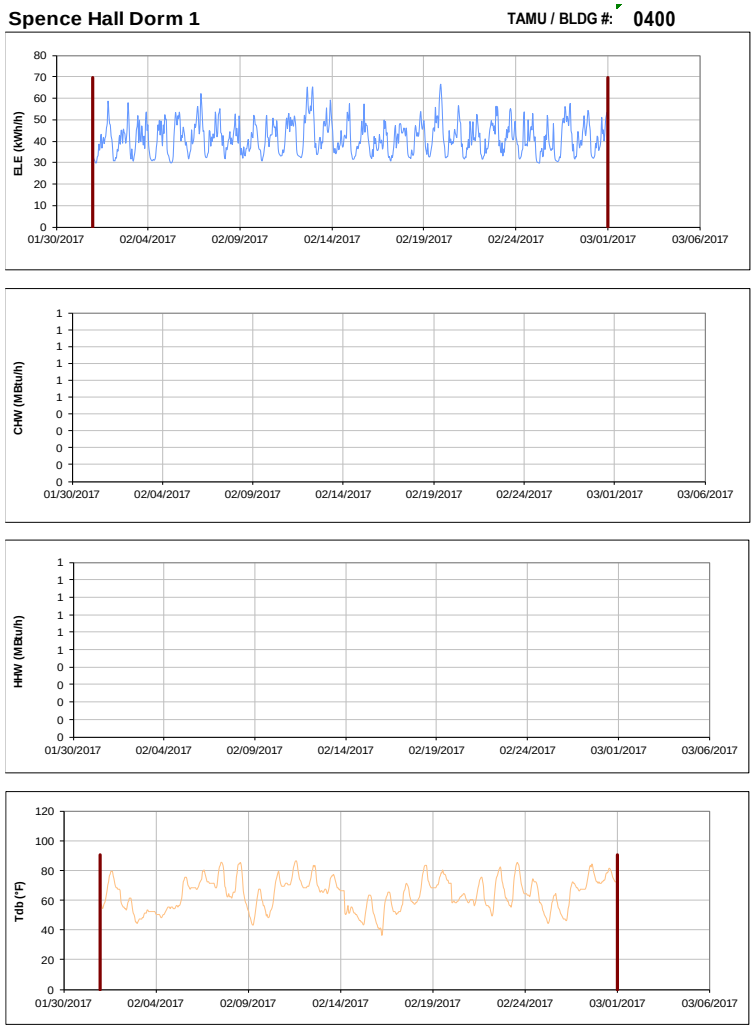



Figure III-24 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Spence Hall Dorm 1 during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

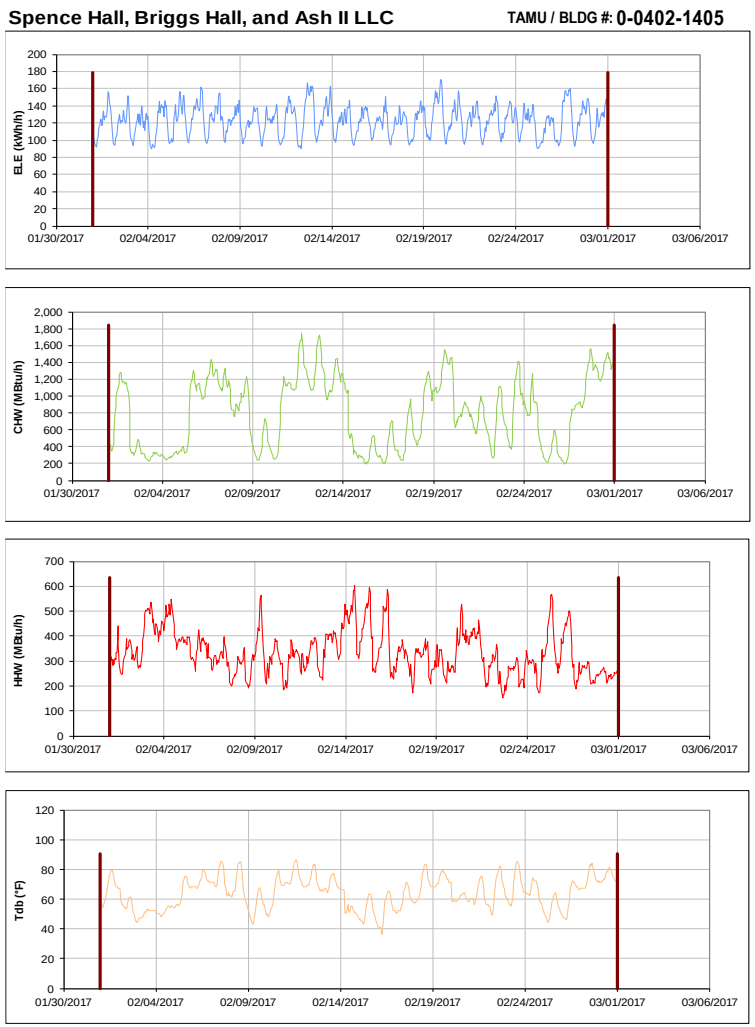



Figure III-25 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Spence Hall, Briggs Hall, and Ash II LLC during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

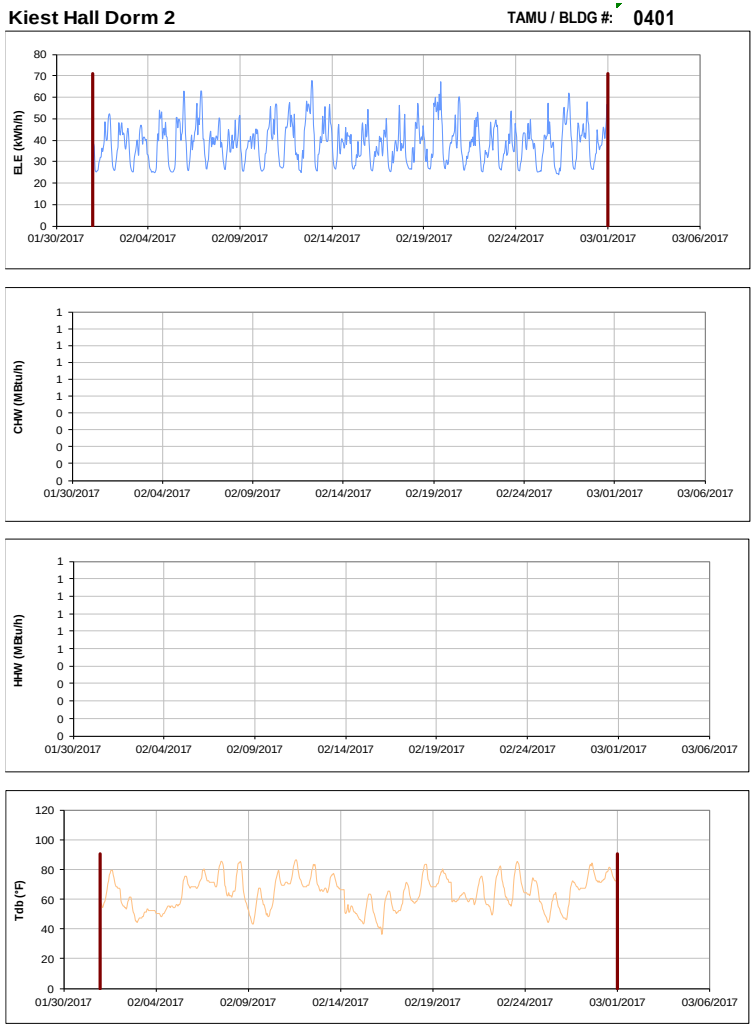



Figure III-26 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kiest Hall Dorm 2 during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

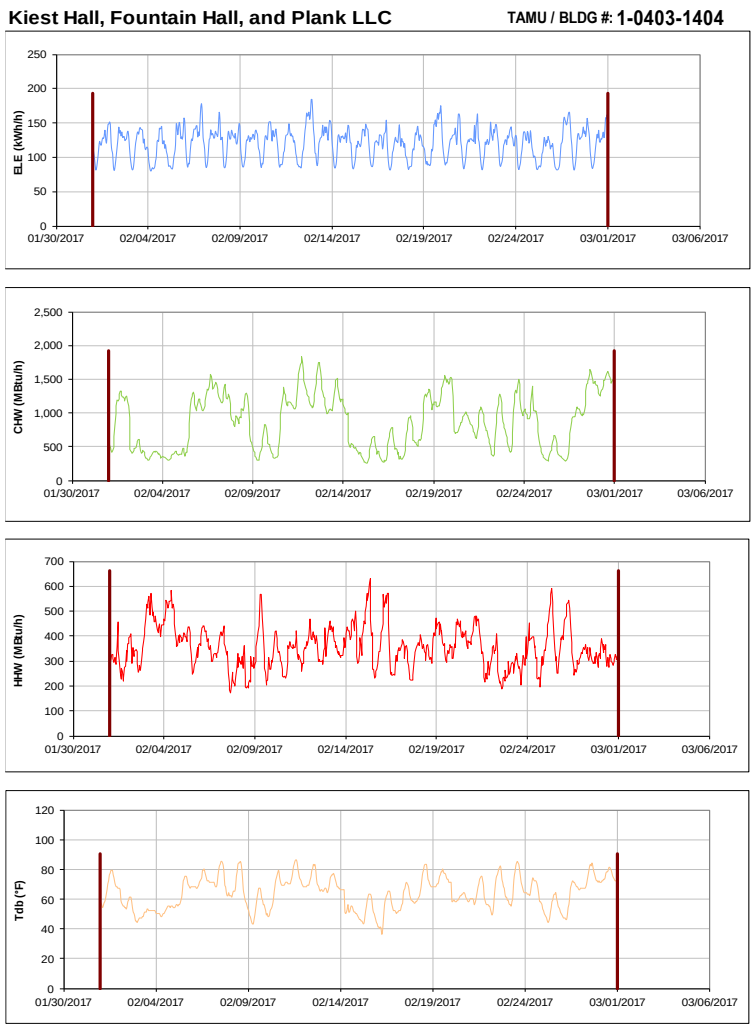



Figure III-27 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kiest Hall, Fountain Hall, and Plank LLC during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

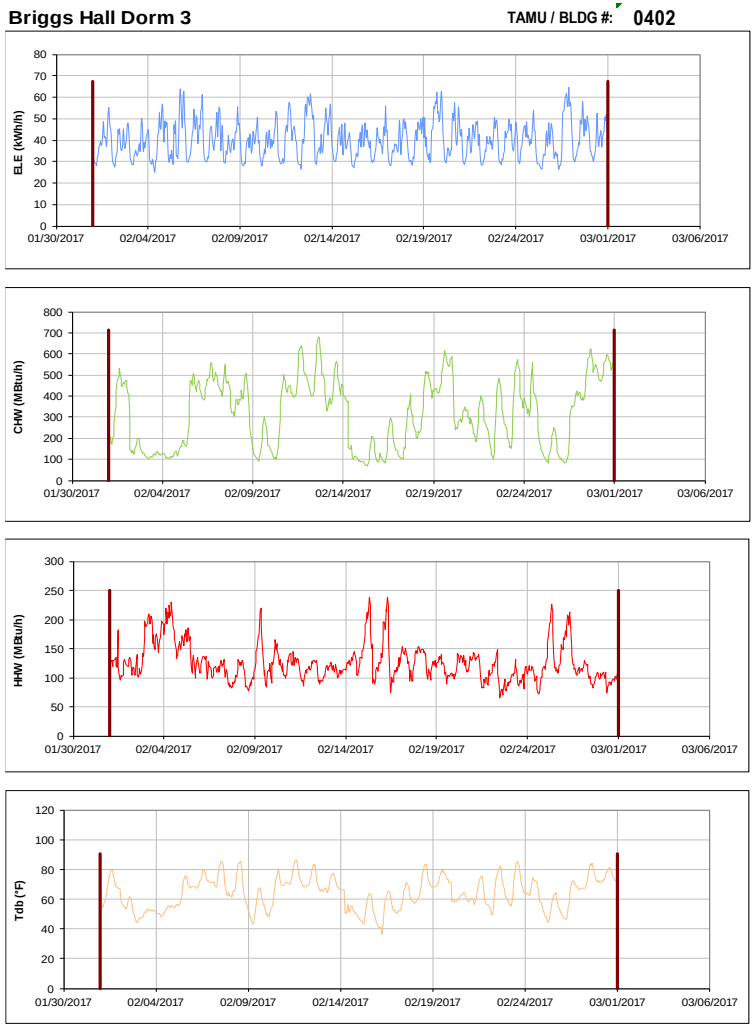



Figure III-28 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Briggs Hall Dorm 3 during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

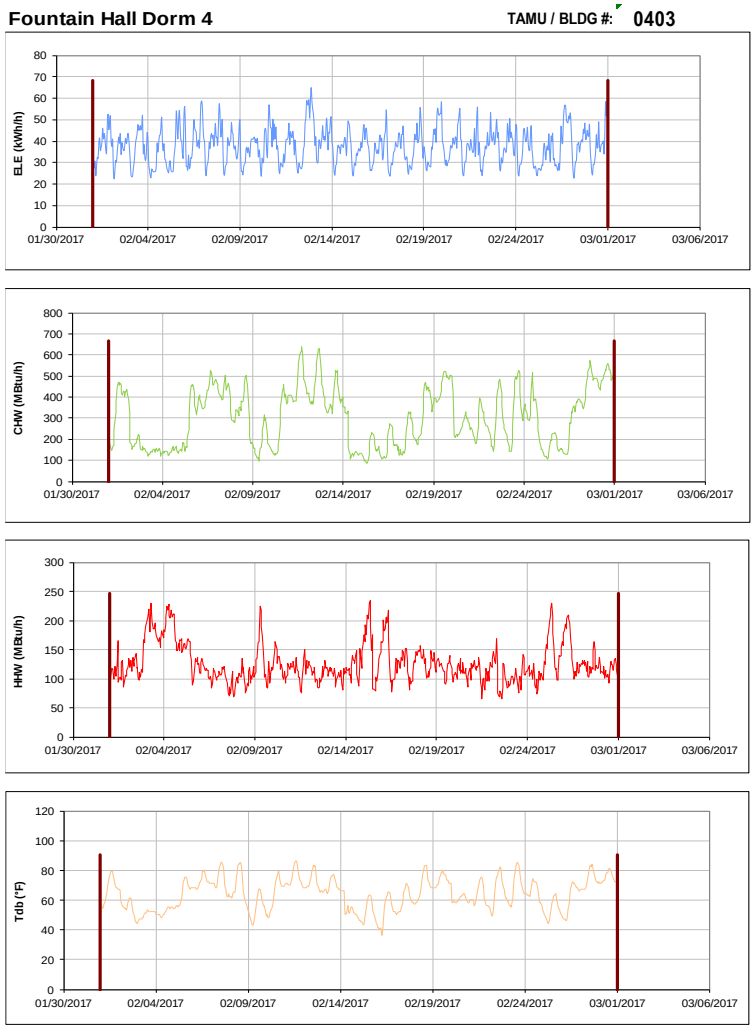



Figure III-29 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Fountain Hall Dorm 4 during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

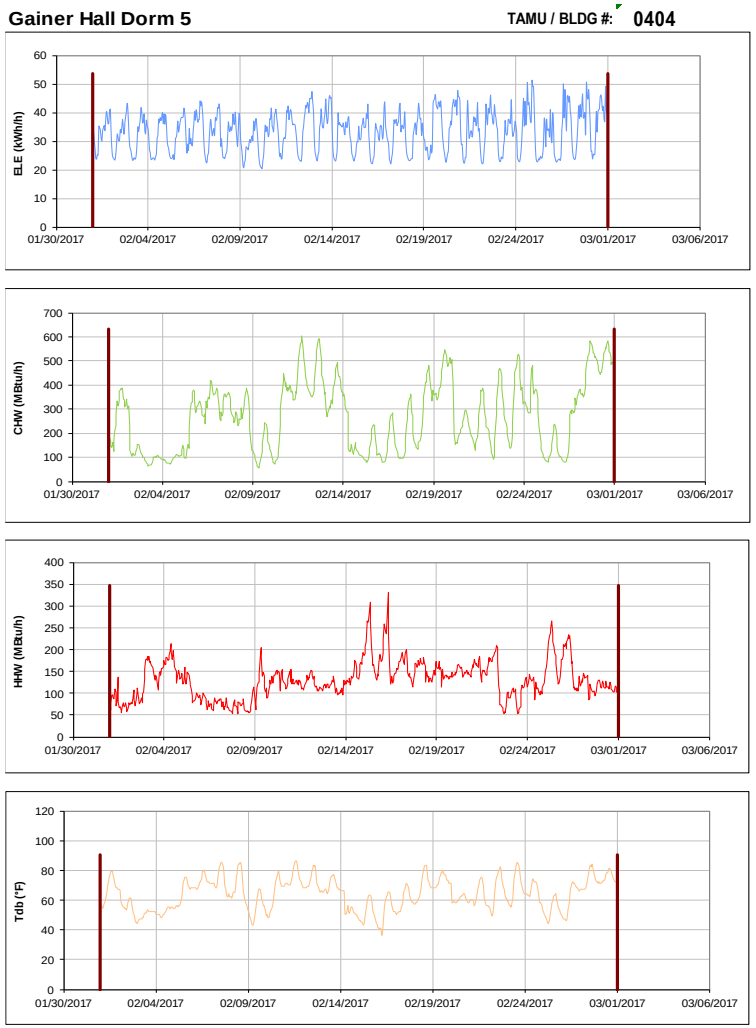



Figure III-30 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Gainer Hall Dorm 5 during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

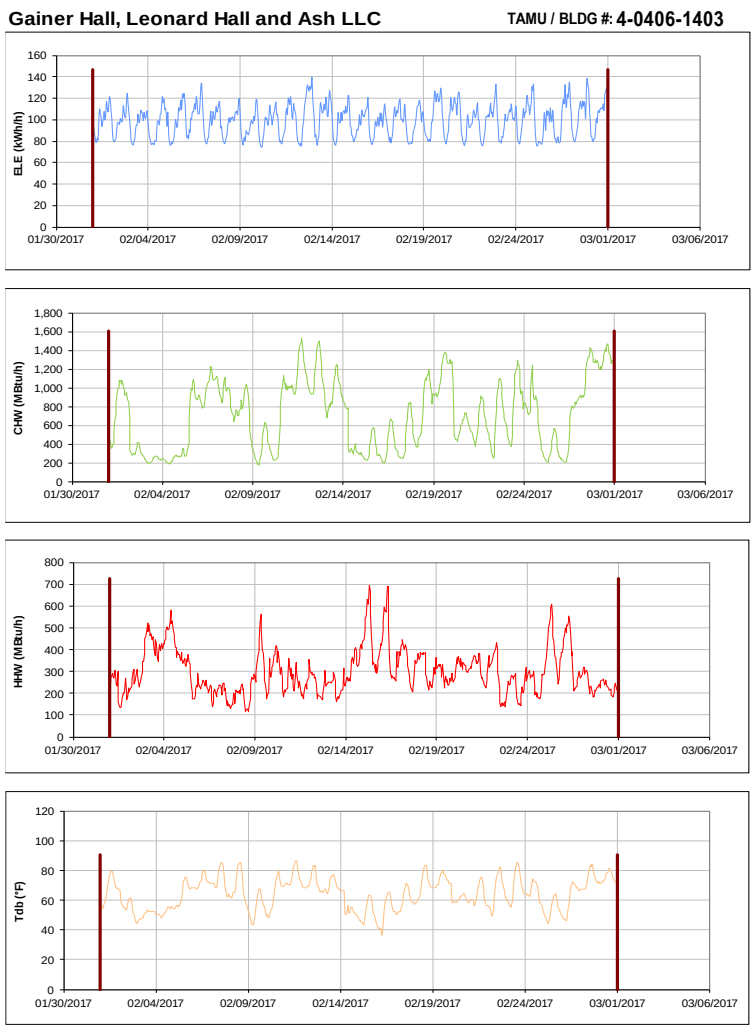



Figure III-31 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Gainer Hall, Leonard Hall and Ash LLC during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

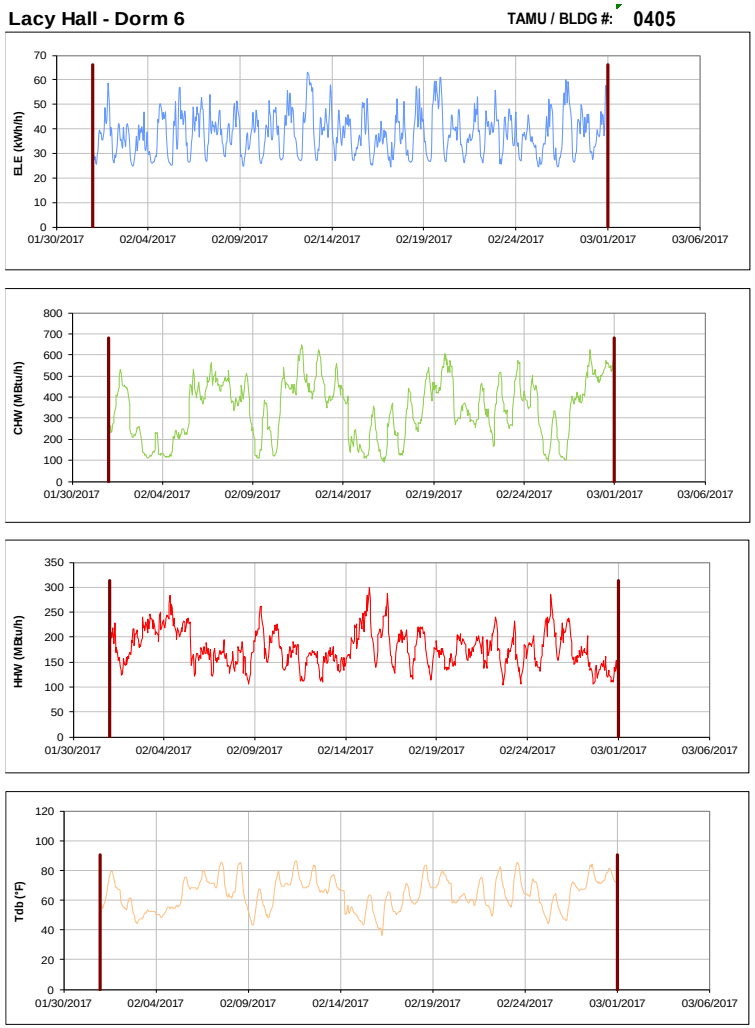



Figure III-32 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Lacy Hall - Dorm 6 during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

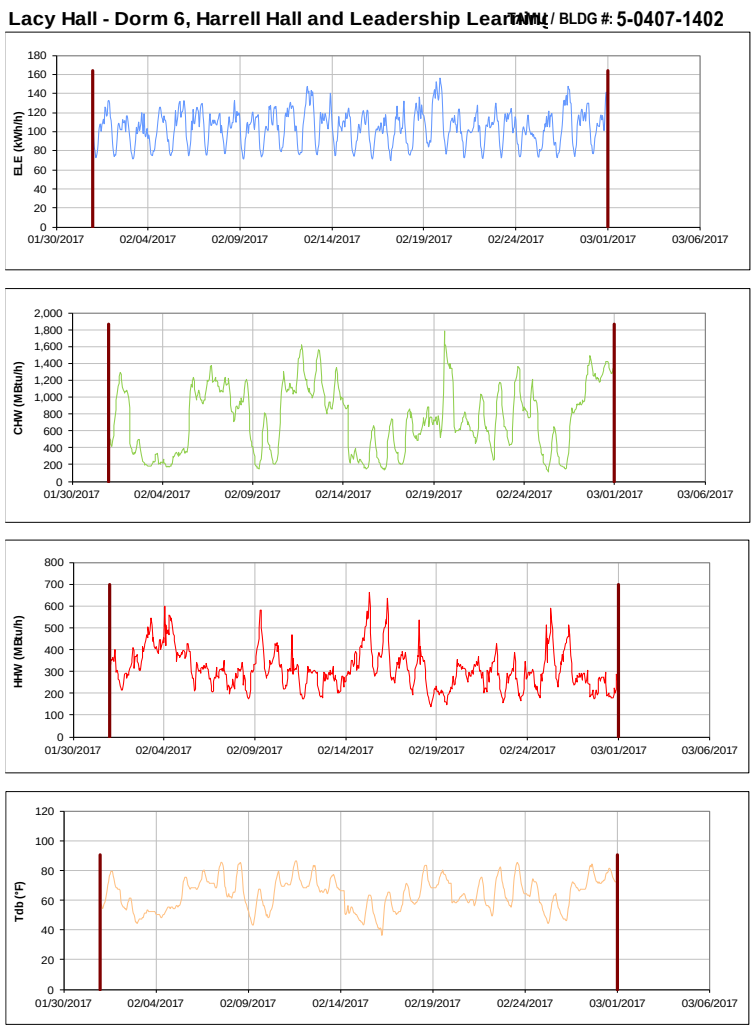



Figure III-33 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Stati

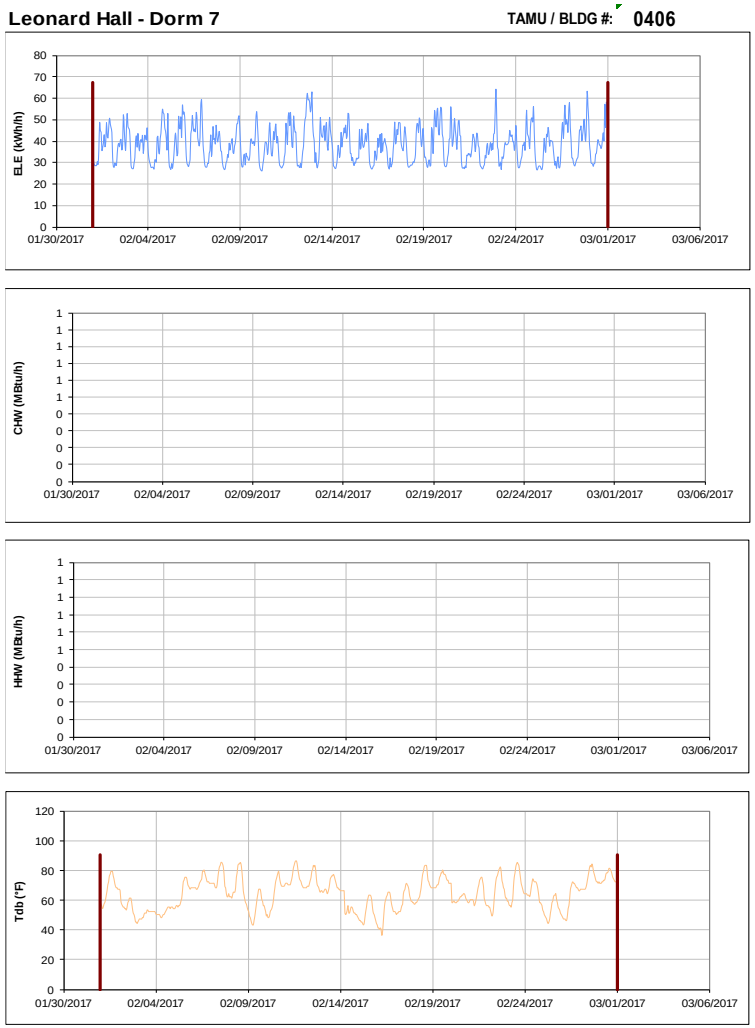



Figure III-34 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Leonard Hall - Dorm 7 during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

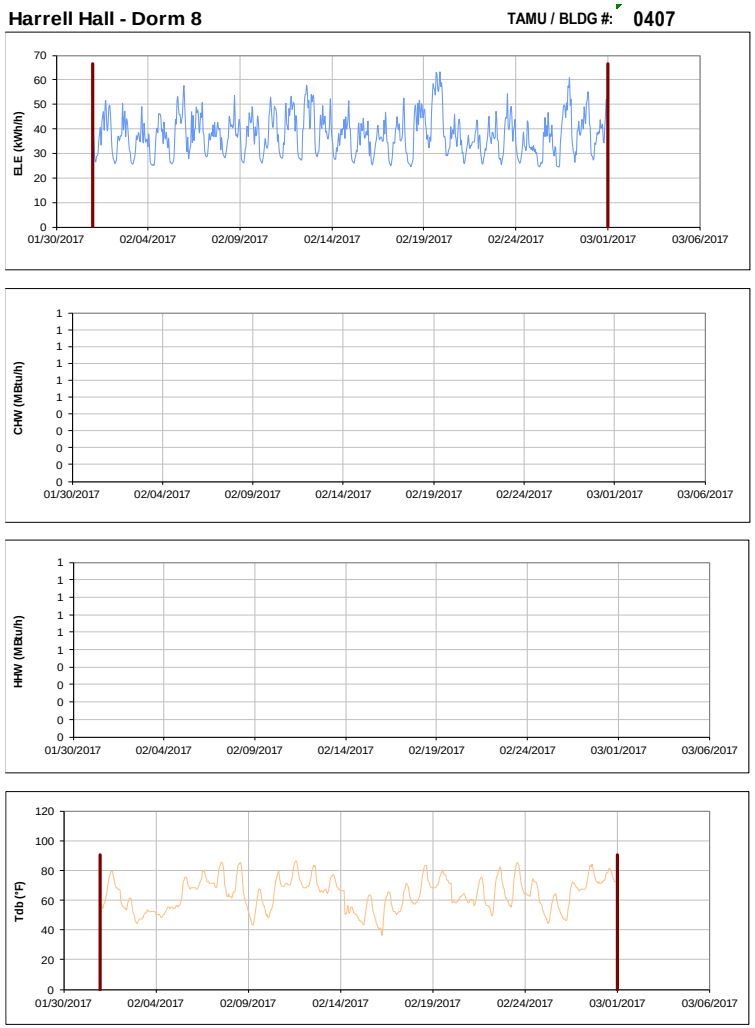



Figure III-35 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrell Hall - Dorm 8 during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

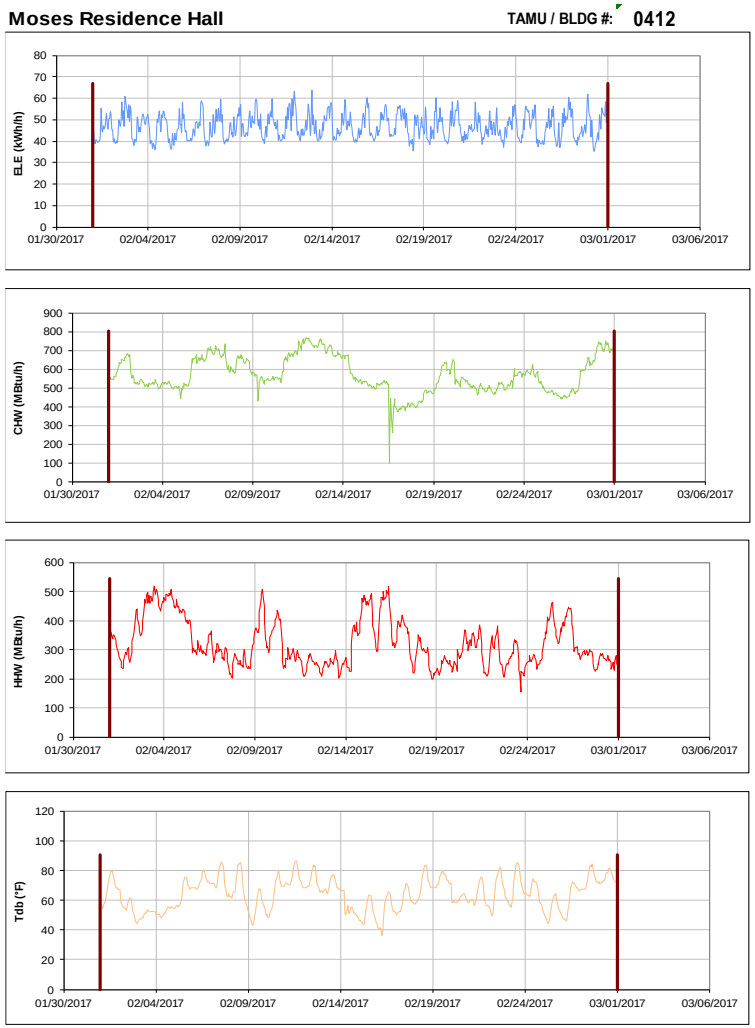



Figure III-36 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Moses Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

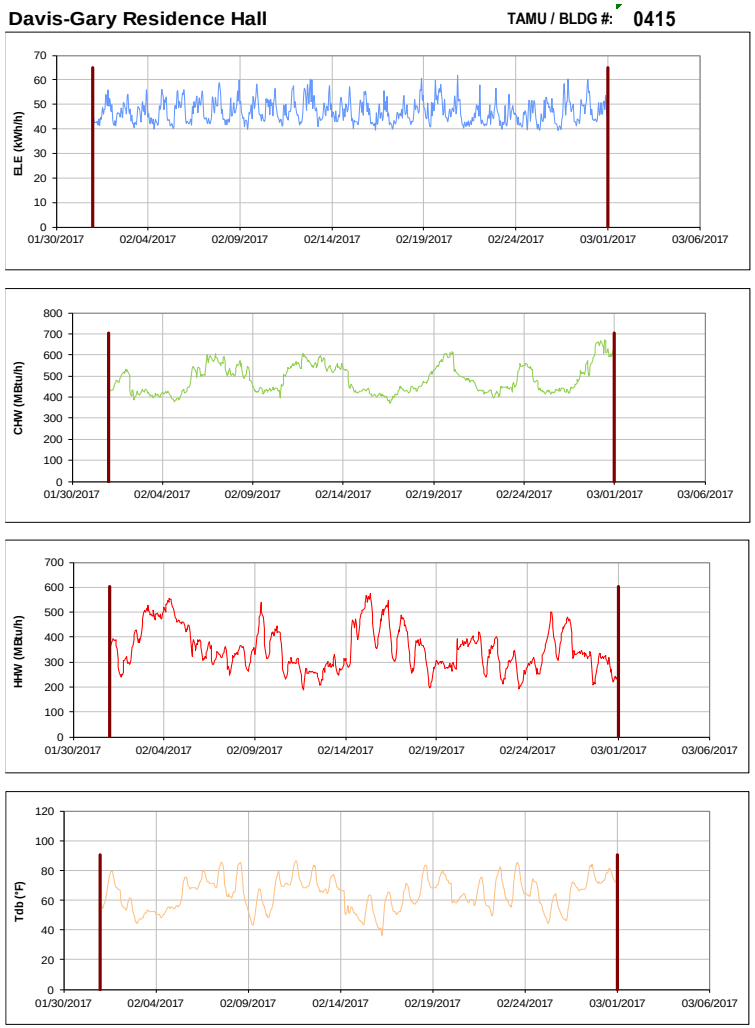



Figure III-37 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Davis-Gary Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

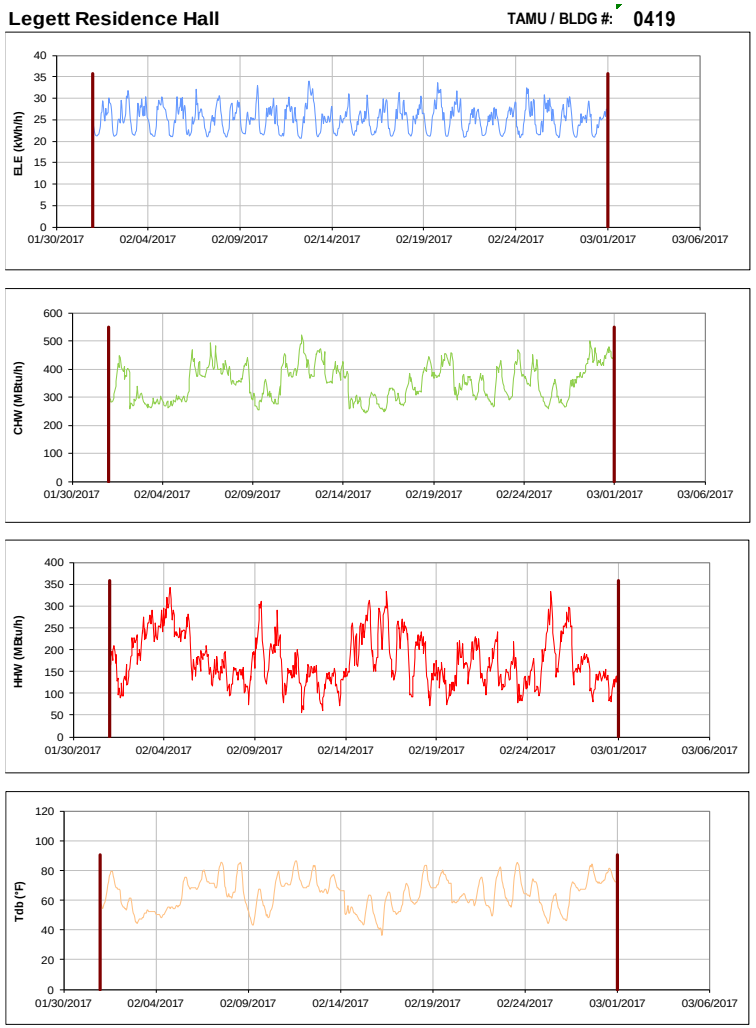



Figure III-38 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Legett Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

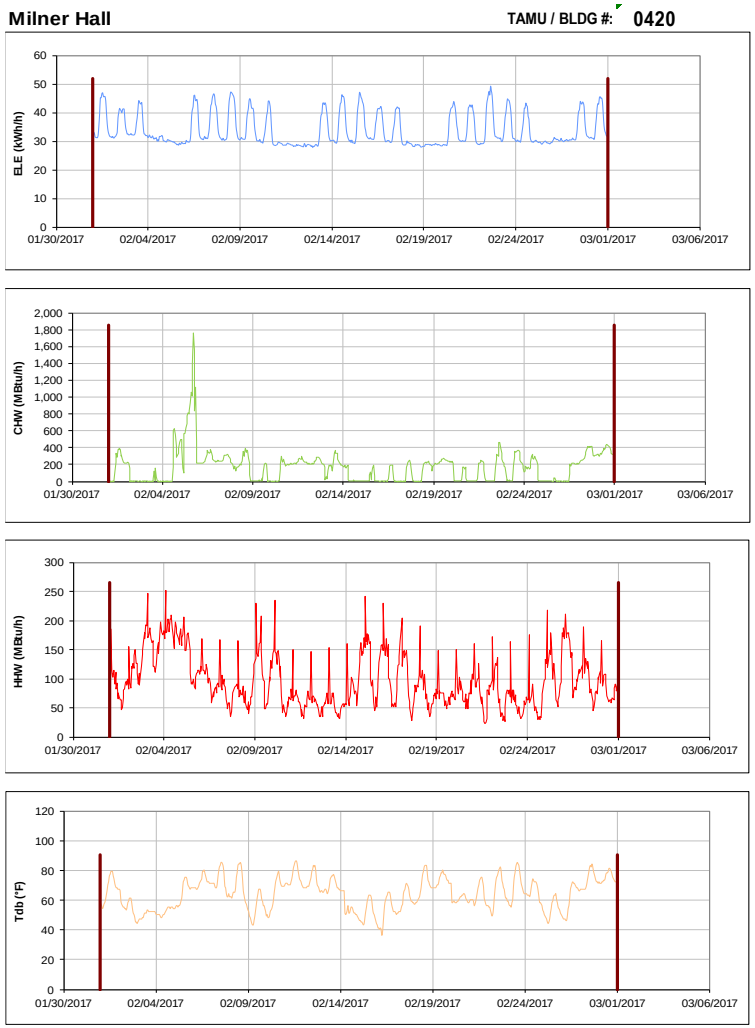



Figure III-39 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Milner Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

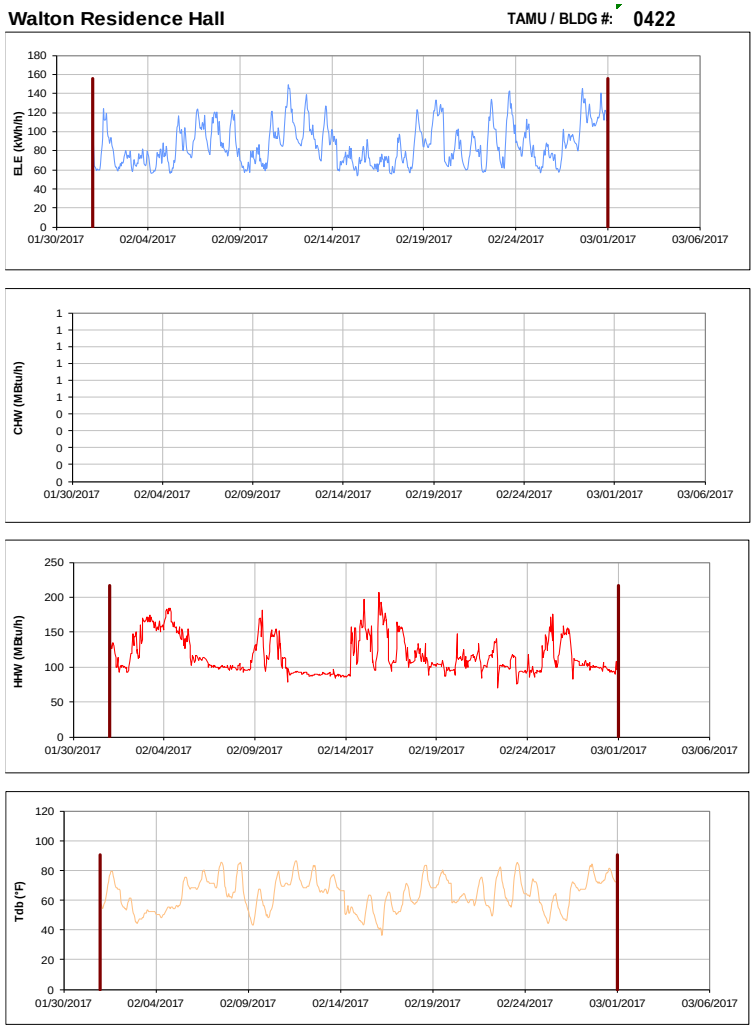



Figure III-40 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Walton Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

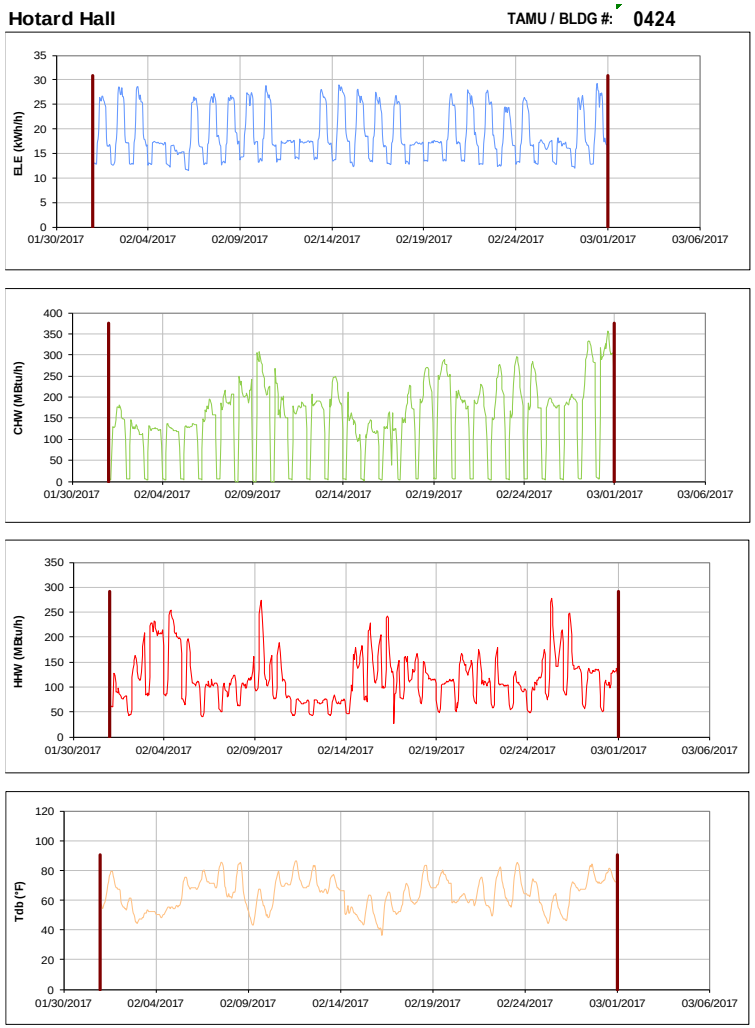



Figure III-41 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Hotard Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-42 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Henderson Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

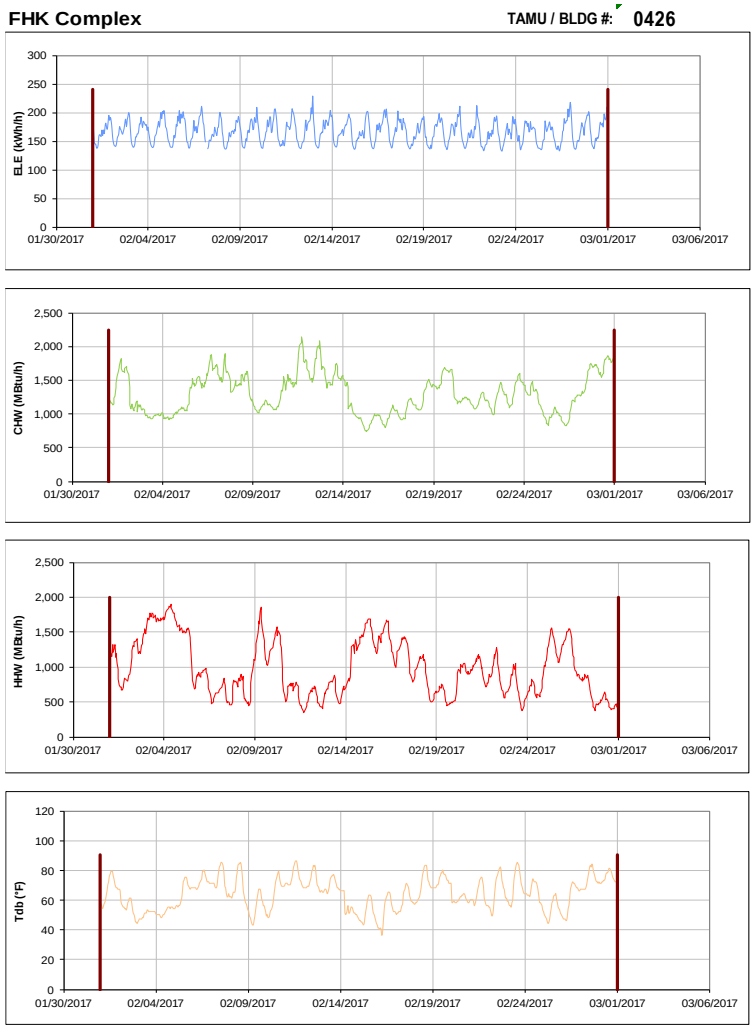



Figure III-43 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for FHK Complex during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

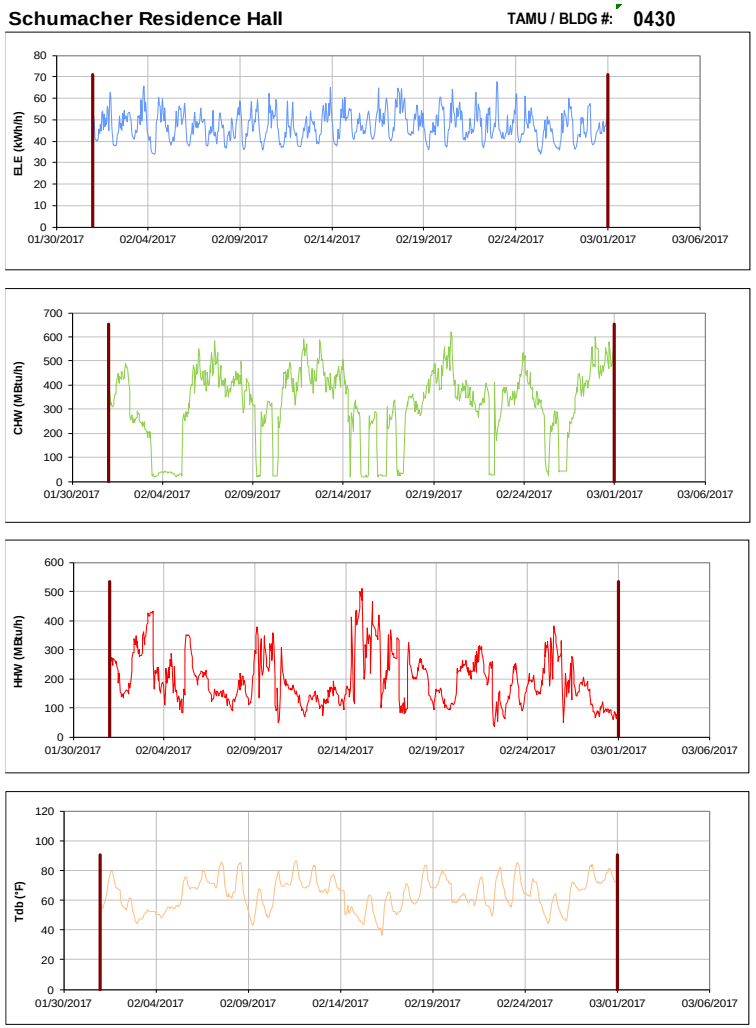



Figure III-44 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Schumacher Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

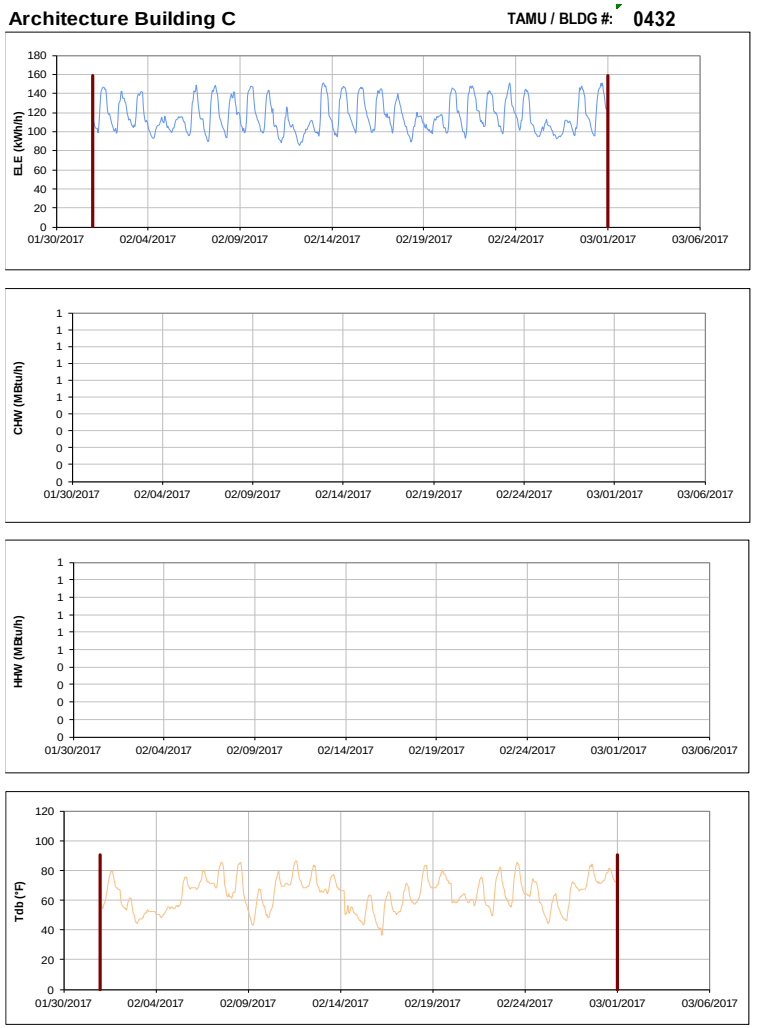



Figure III-45 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Architecture Building C during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

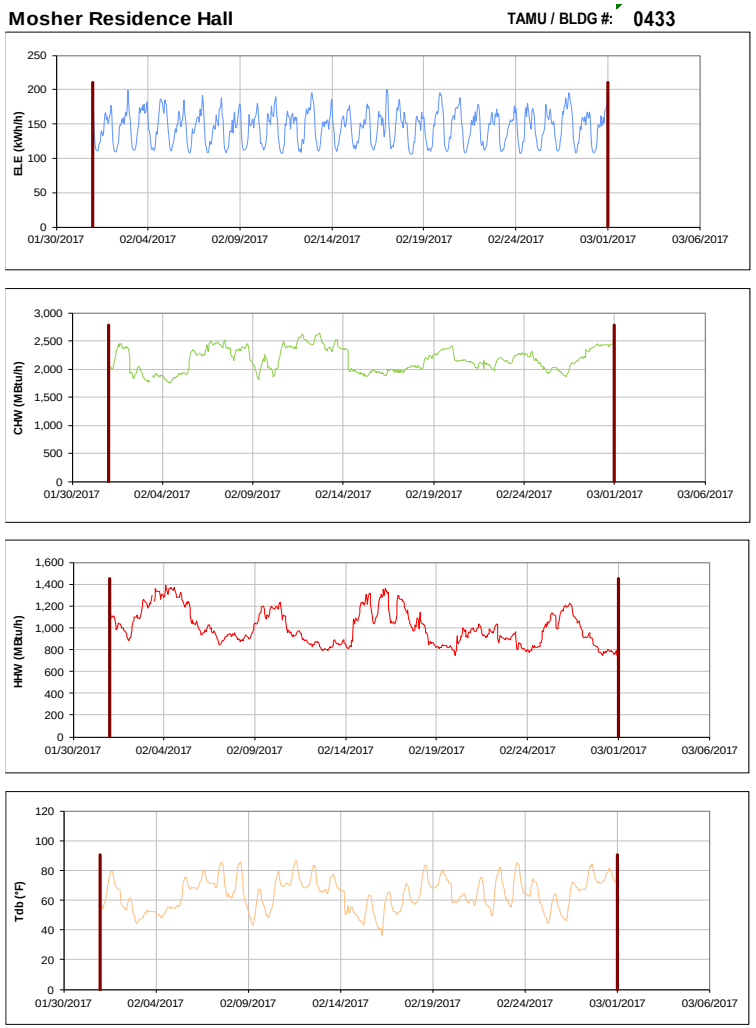



Figure III-46 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Mosher Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

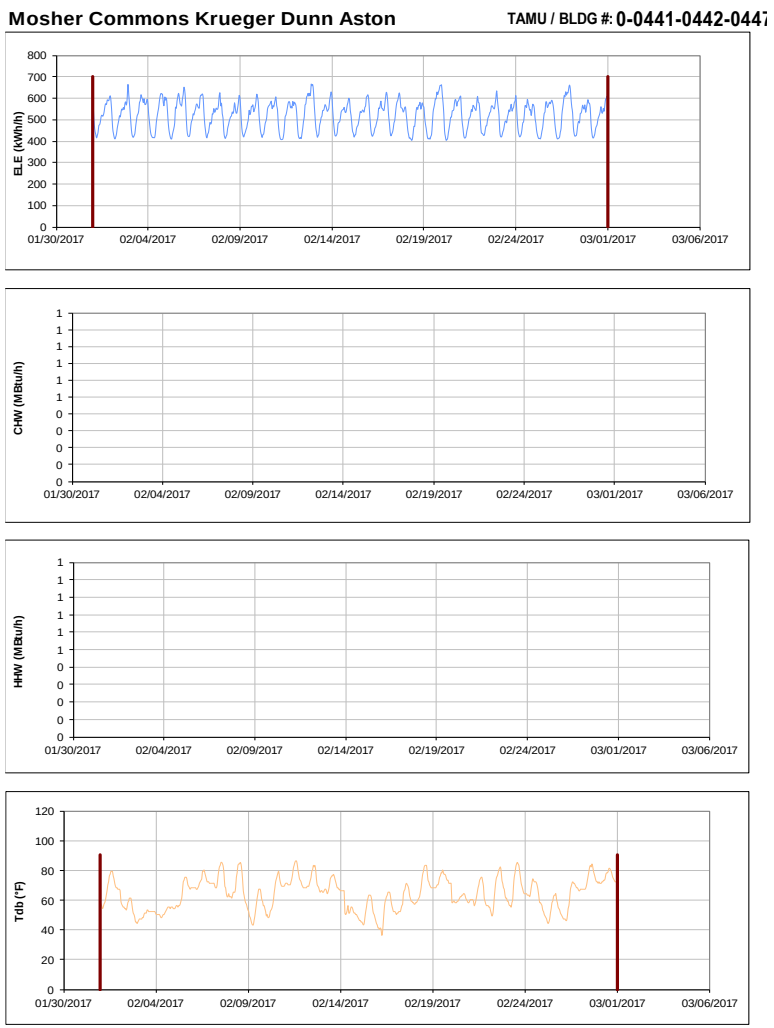



Figure III-47 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Mosher Commons Krueger Dunn Aston during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

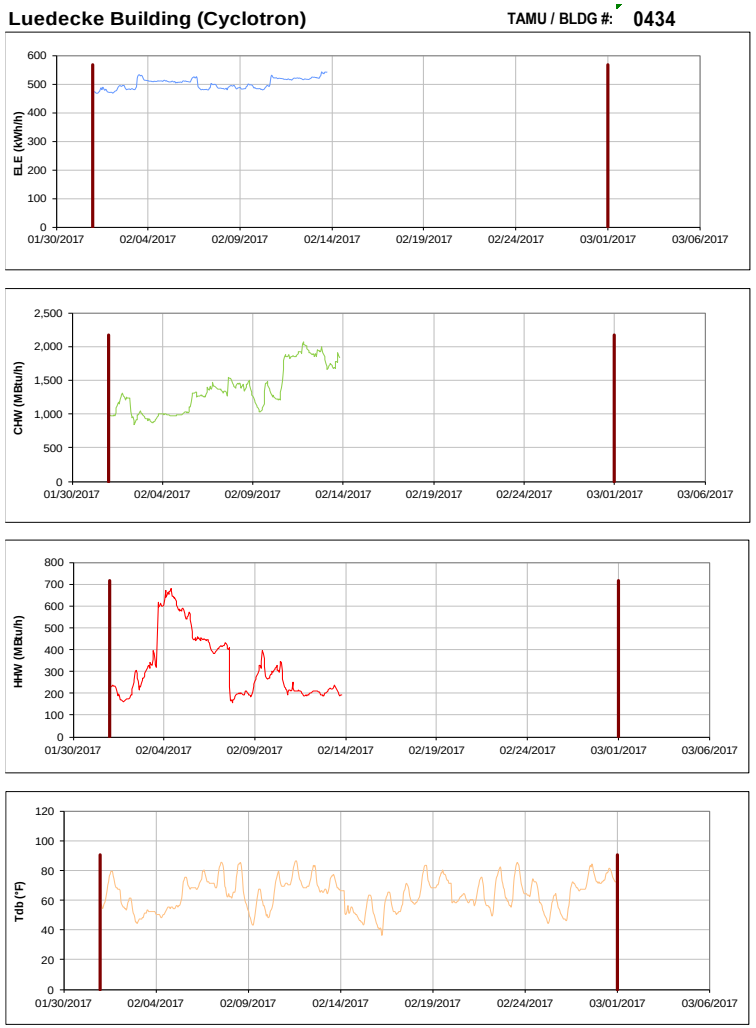



Figure III-48 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Luedecke Building (Cyclotron) during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-49 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrington Education Center Office Tower during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

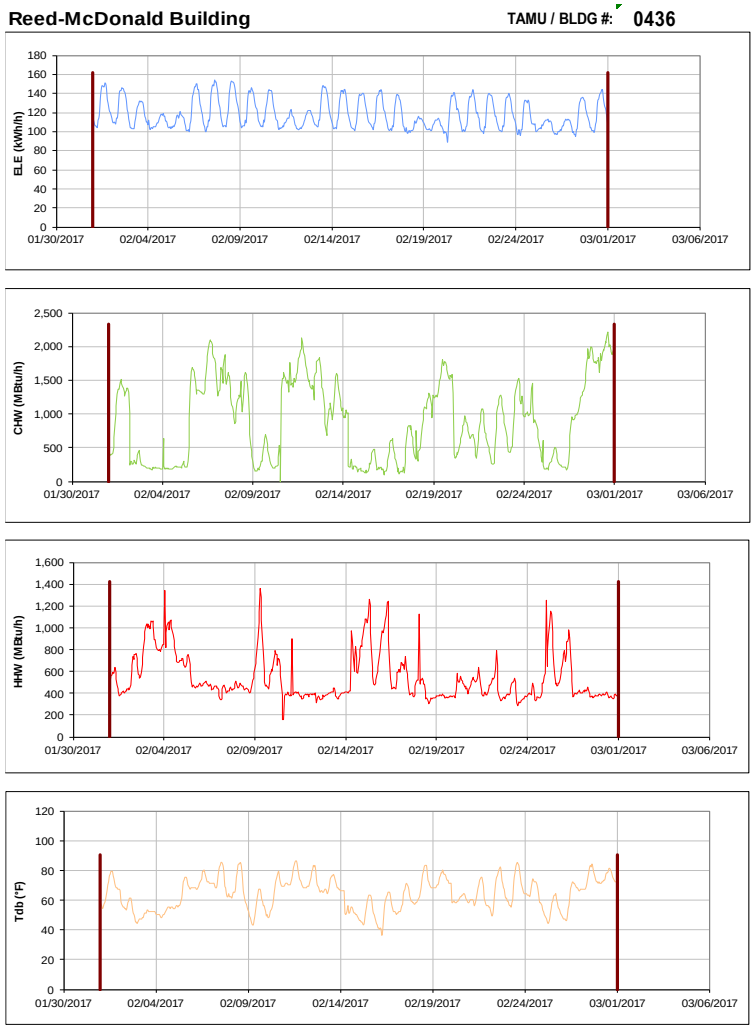



Figure III-50 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reed-McDonald Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

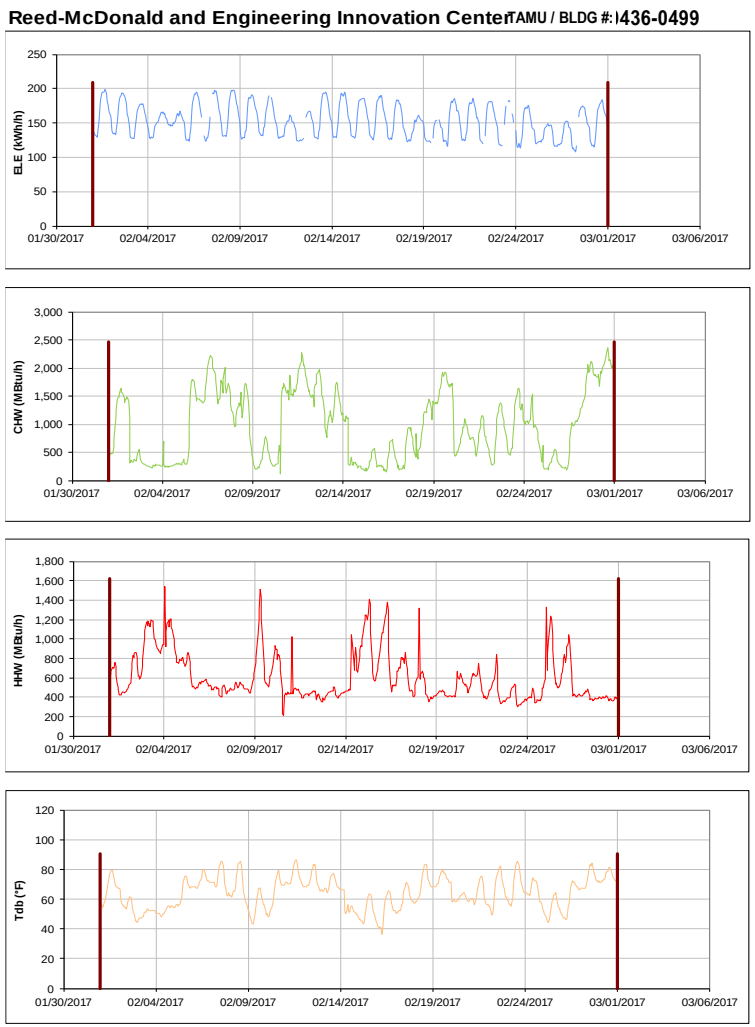



Figure III-51 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reed-McDonald and Engineering Innovation Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

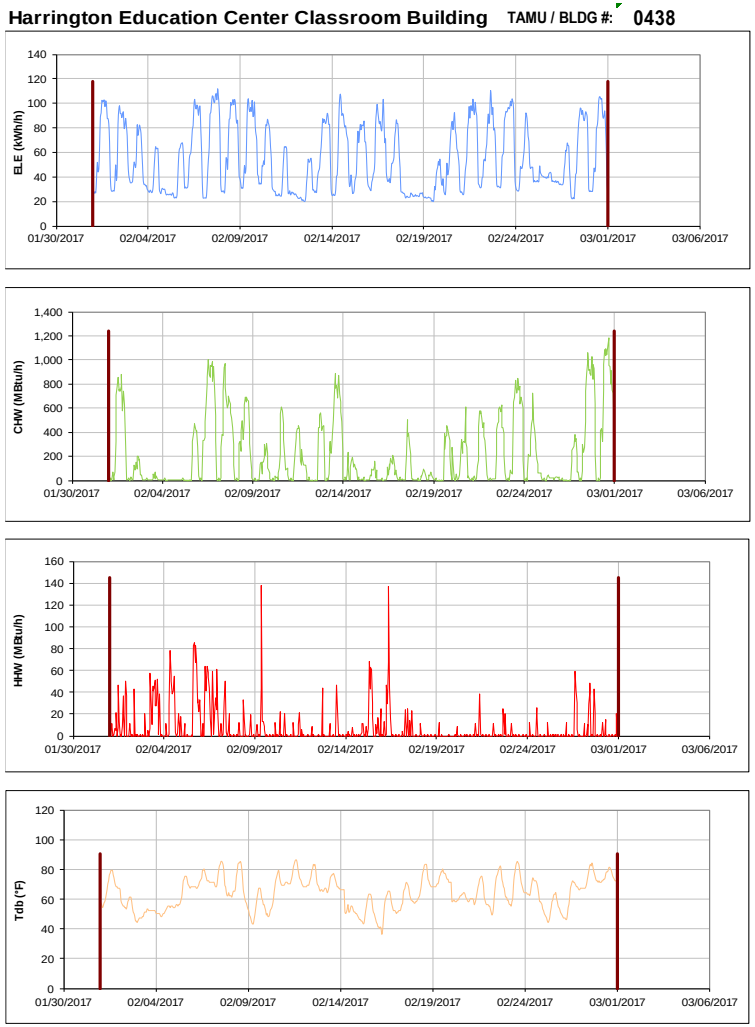



Figure III-52 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrington Education Center Classroom Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

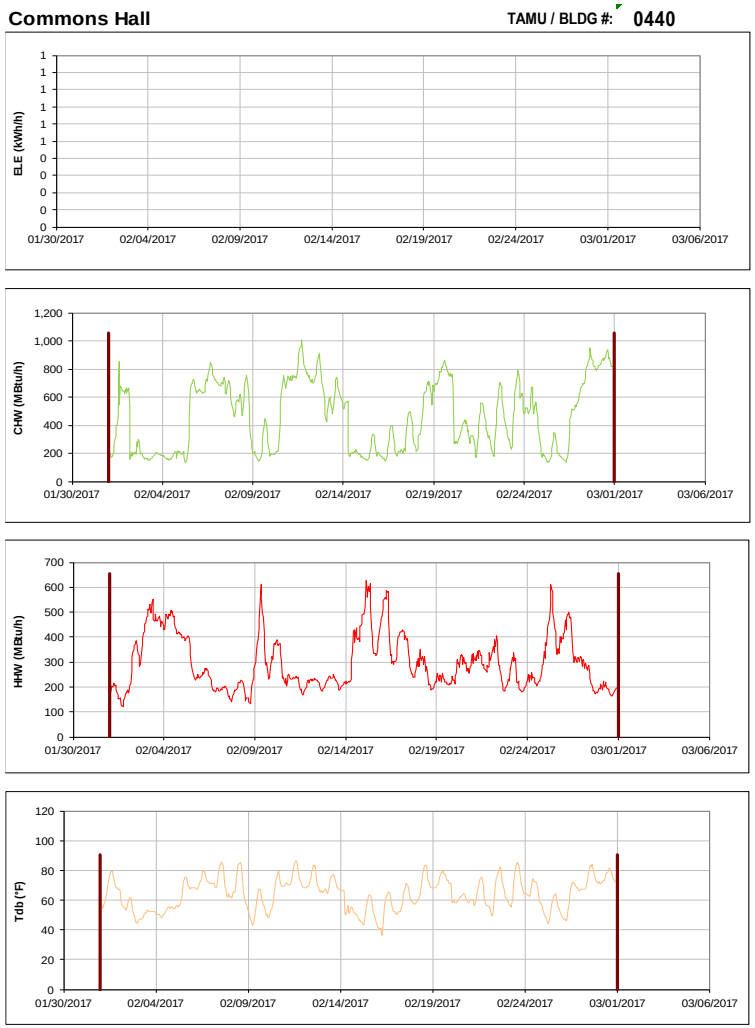



Figure III-53 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Commons Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

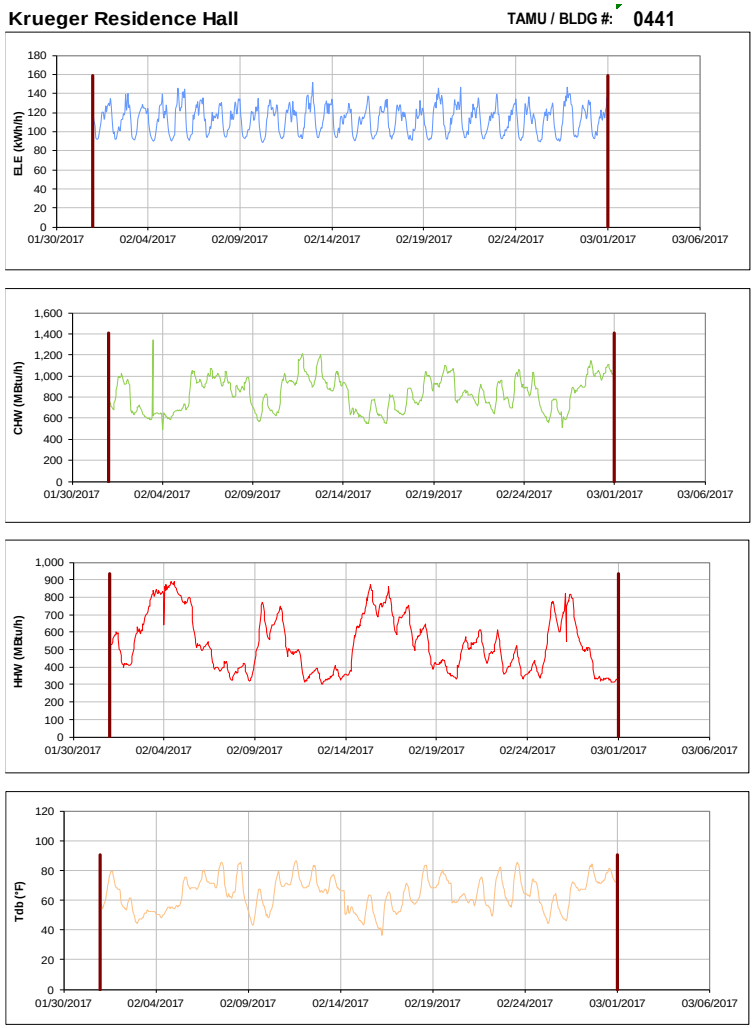



Figure III-54 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Krueger Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

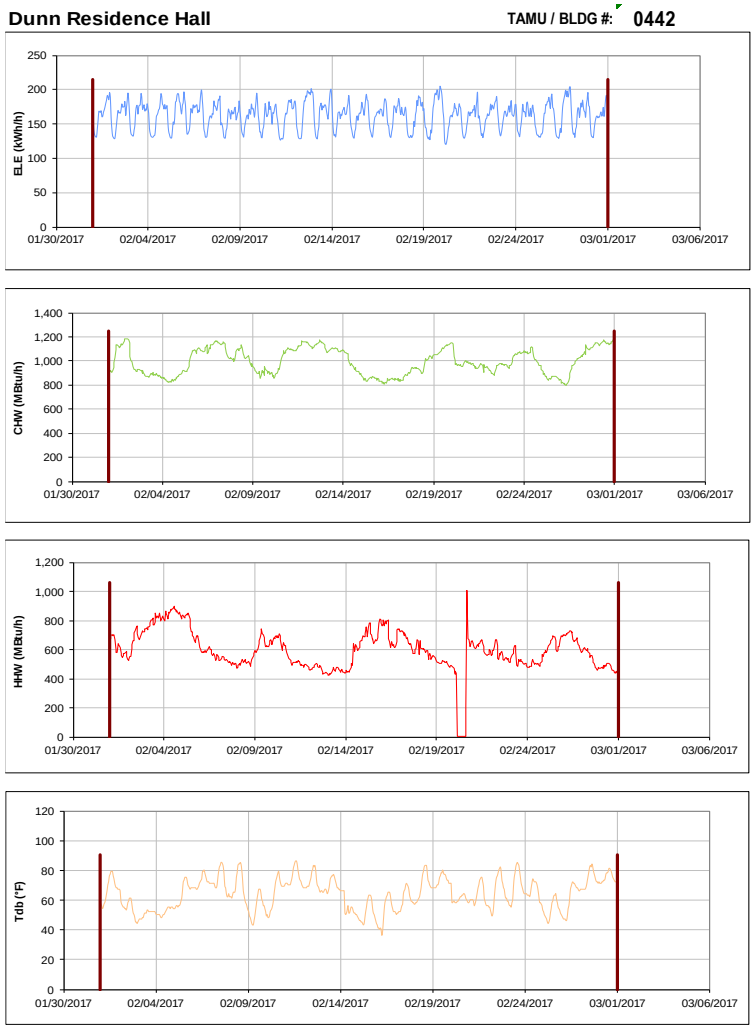



Figure III-55 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Dunn Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

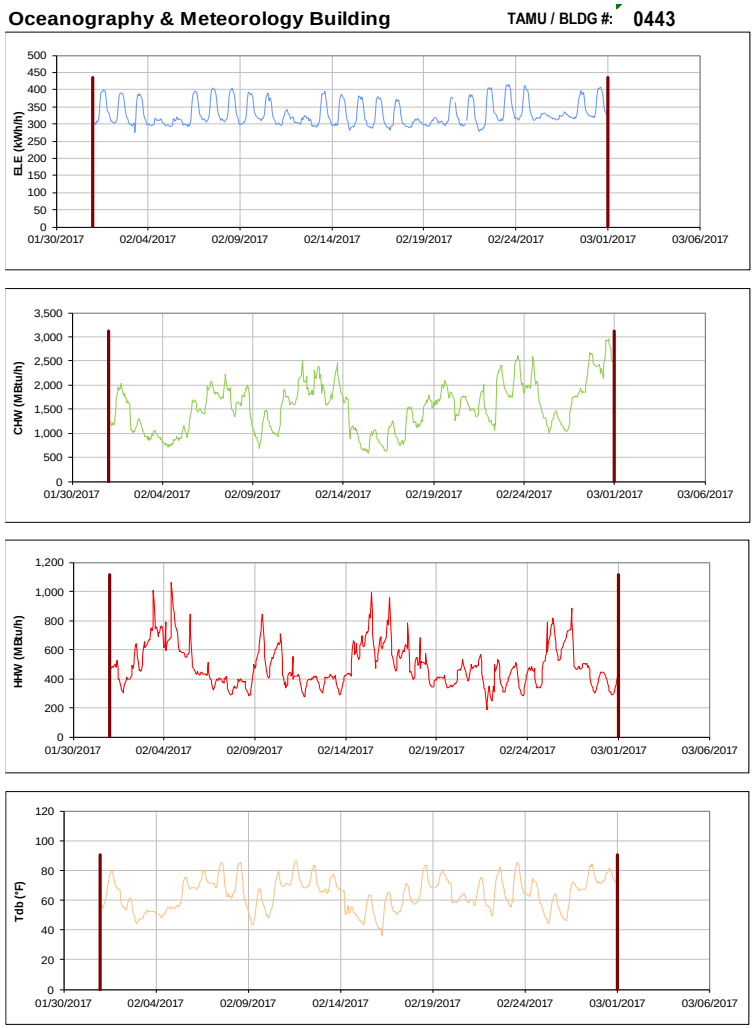



Figure III-56 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Oceanography & Meteorology Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

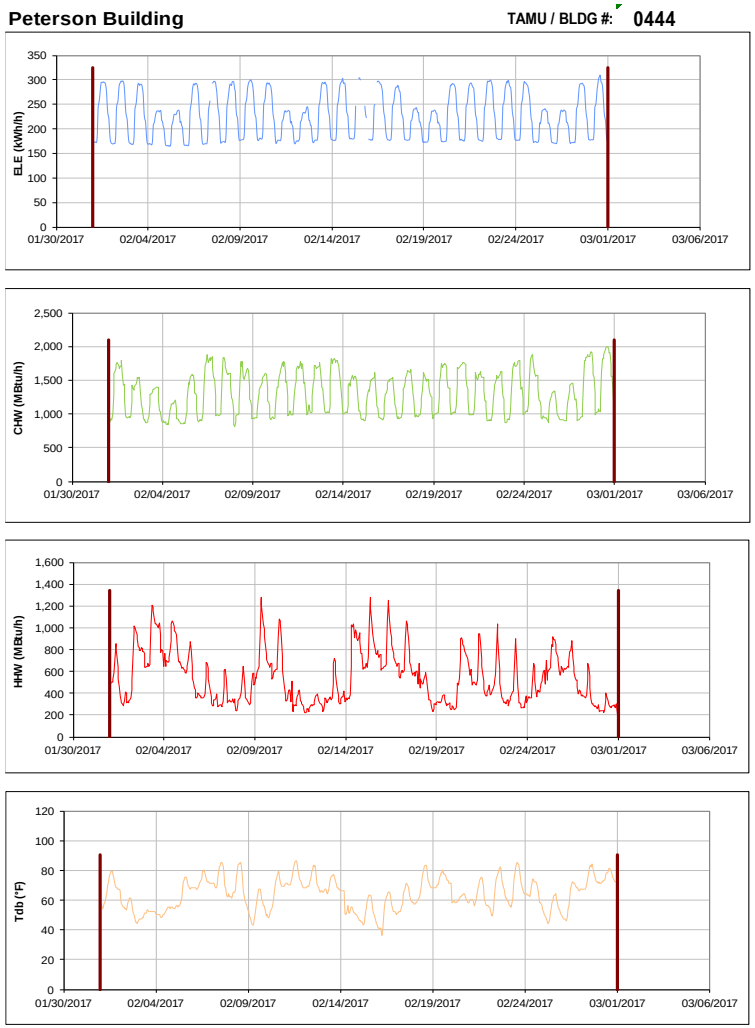



Figure III-57 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Peterson Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

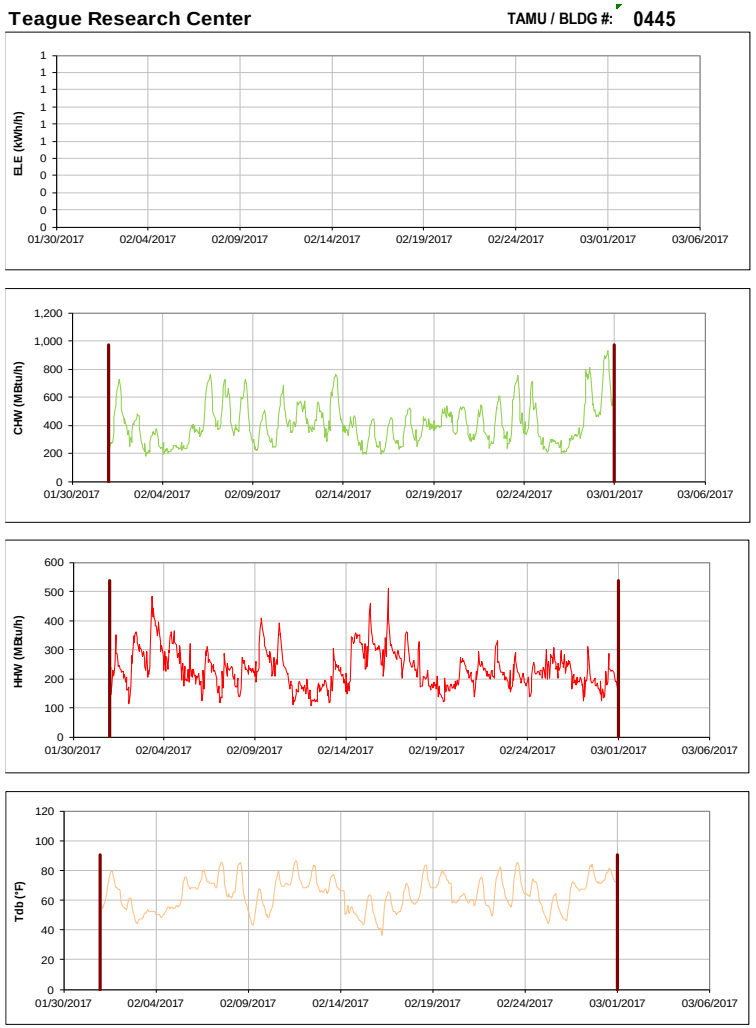



Figure III-58 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Teague Research Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

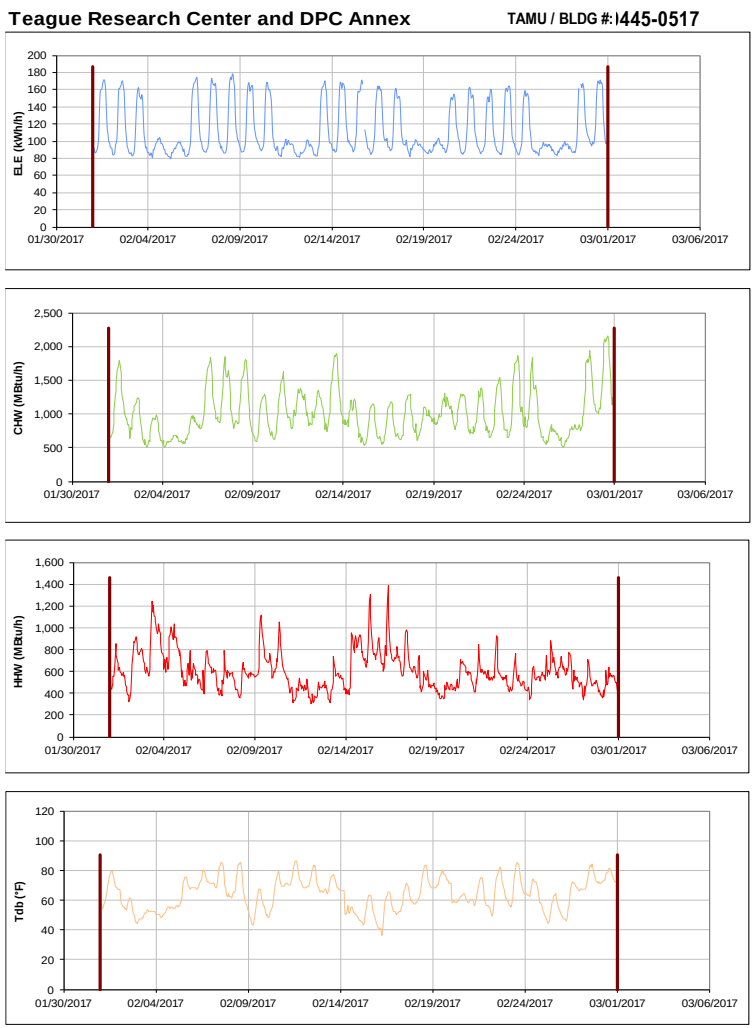



Figure III-59 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Teague Research Center and DPC Annex during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

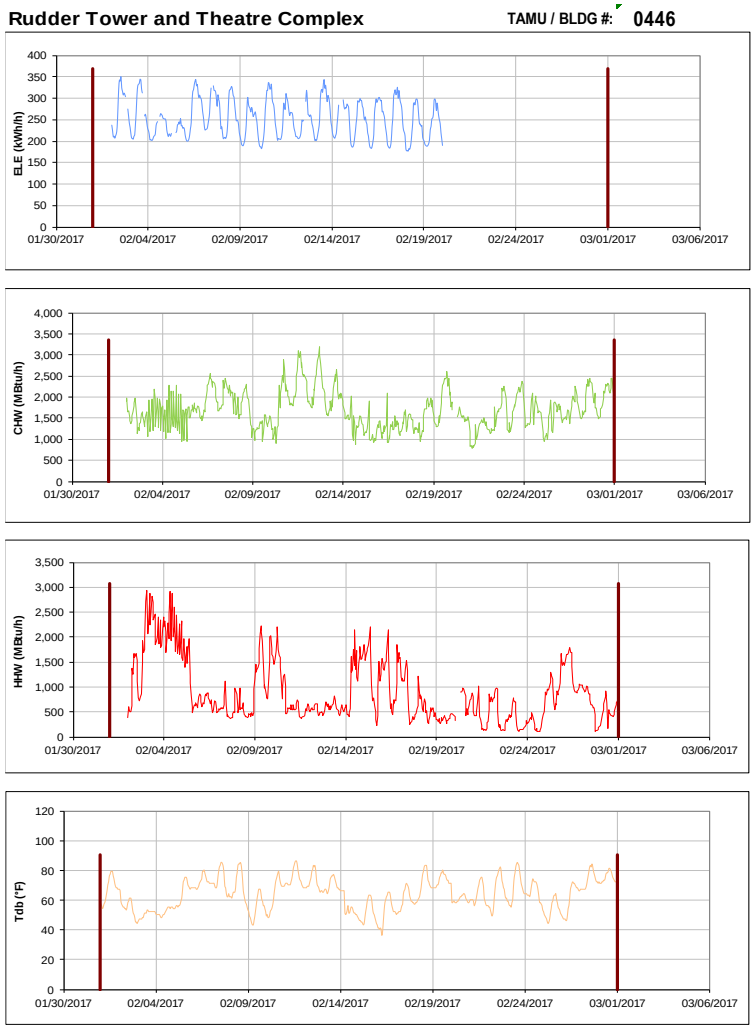



Figure III-60 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Tower and Theatre Complex during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

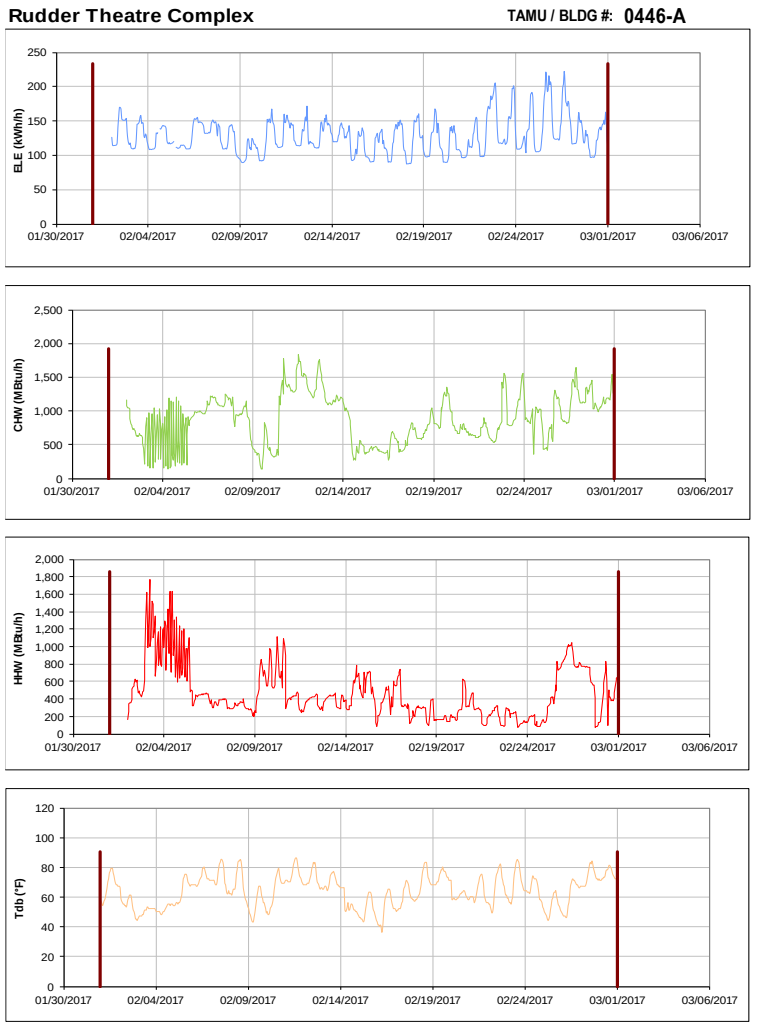



Figure III-61 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Theatre Complex during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

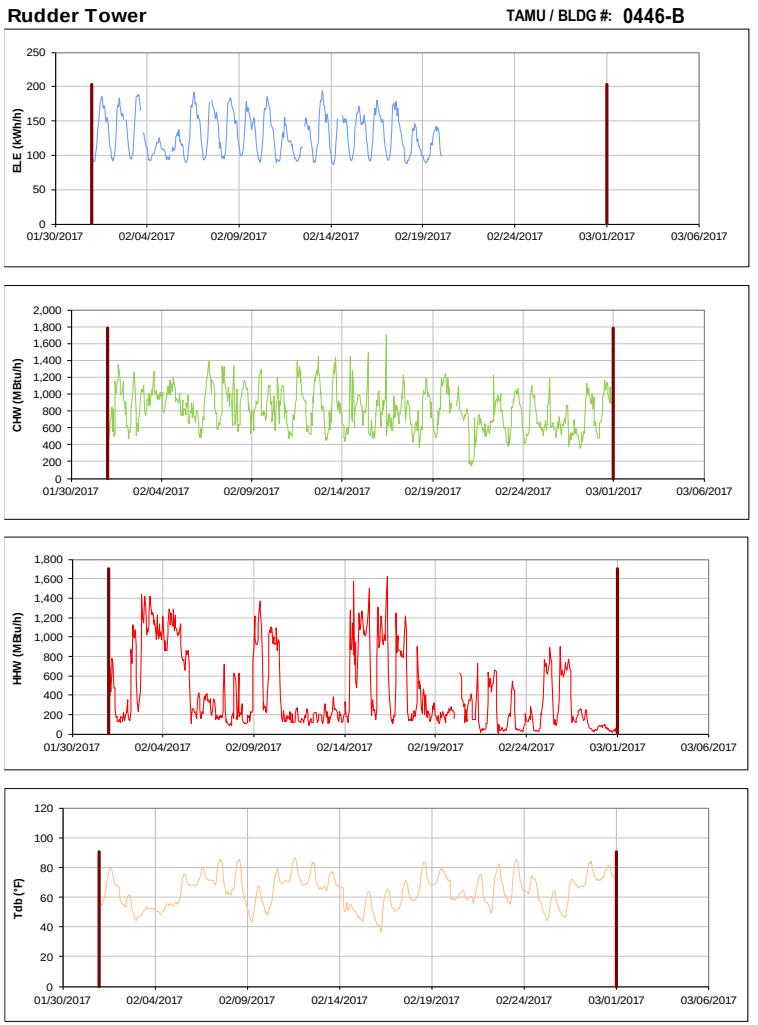



Figure III-62 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Tower during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

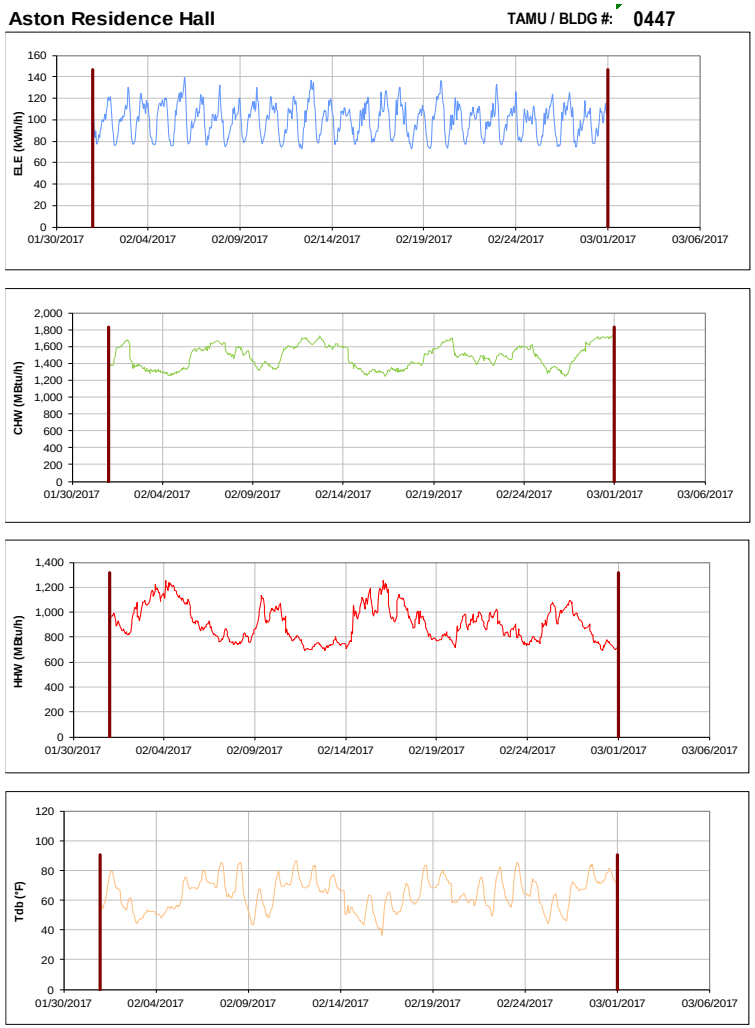



Figure III-63 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Aston Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

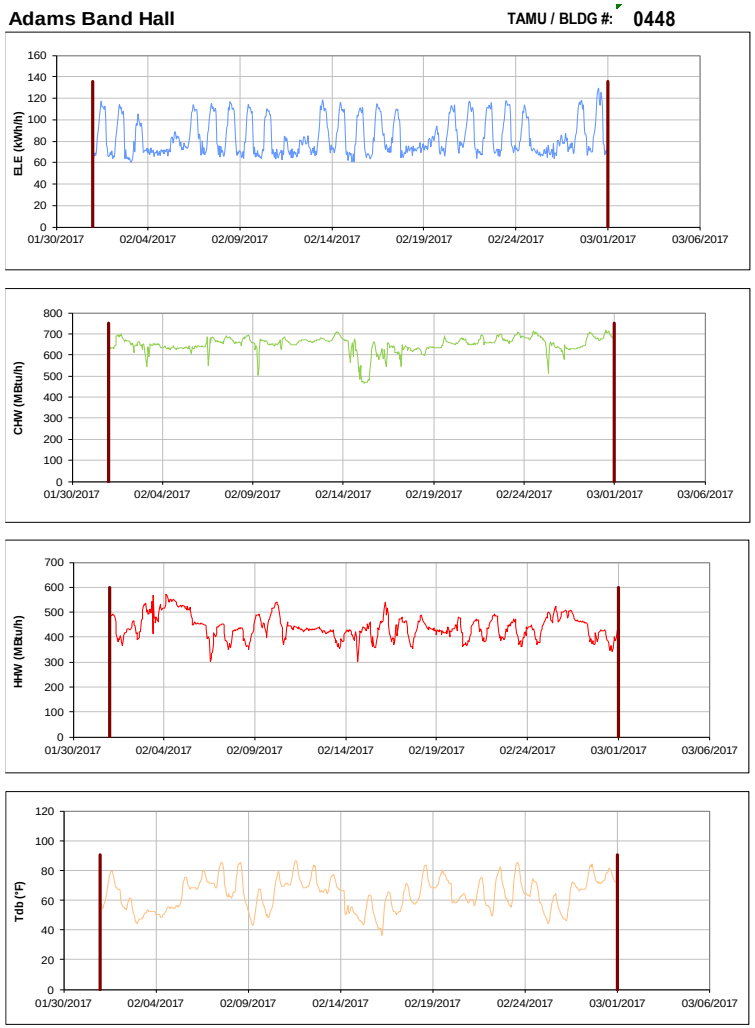



Figure III-64 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Adams Band Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

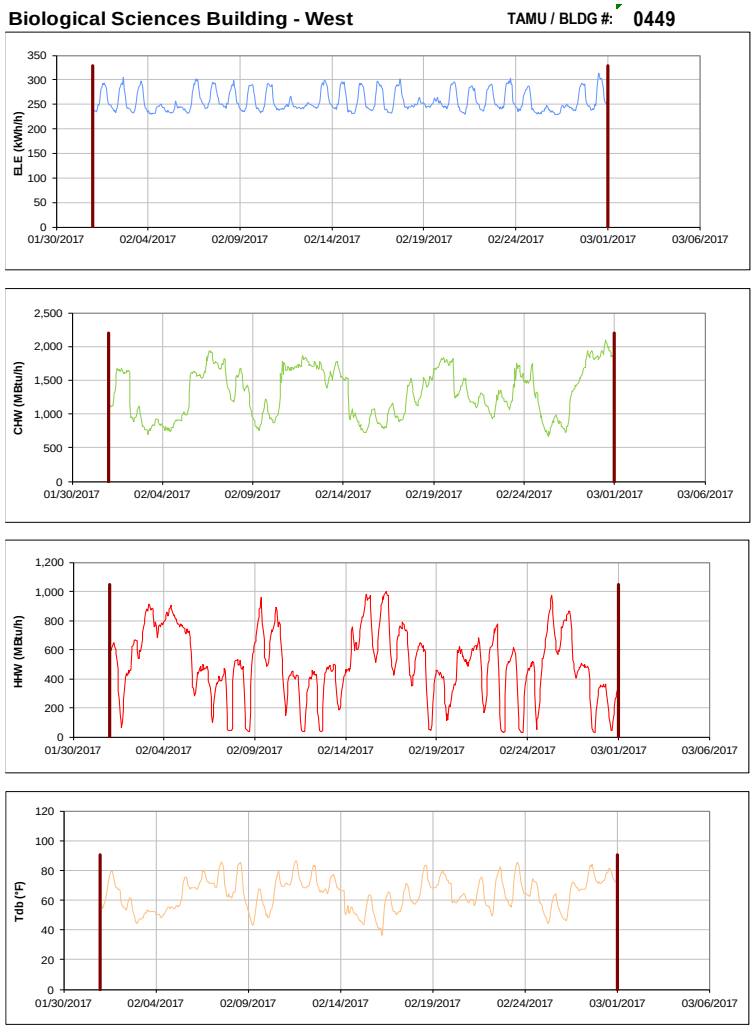



Figure III-65 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biological Sciences Building - West during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

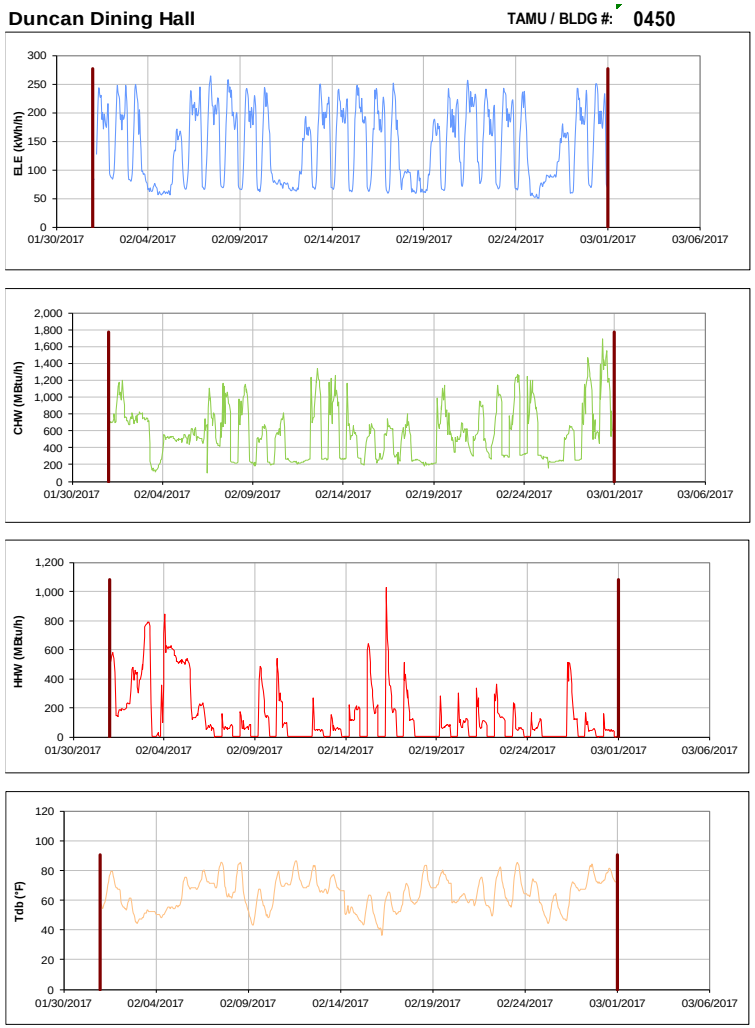



Figure III-66 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Duncan Dining Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

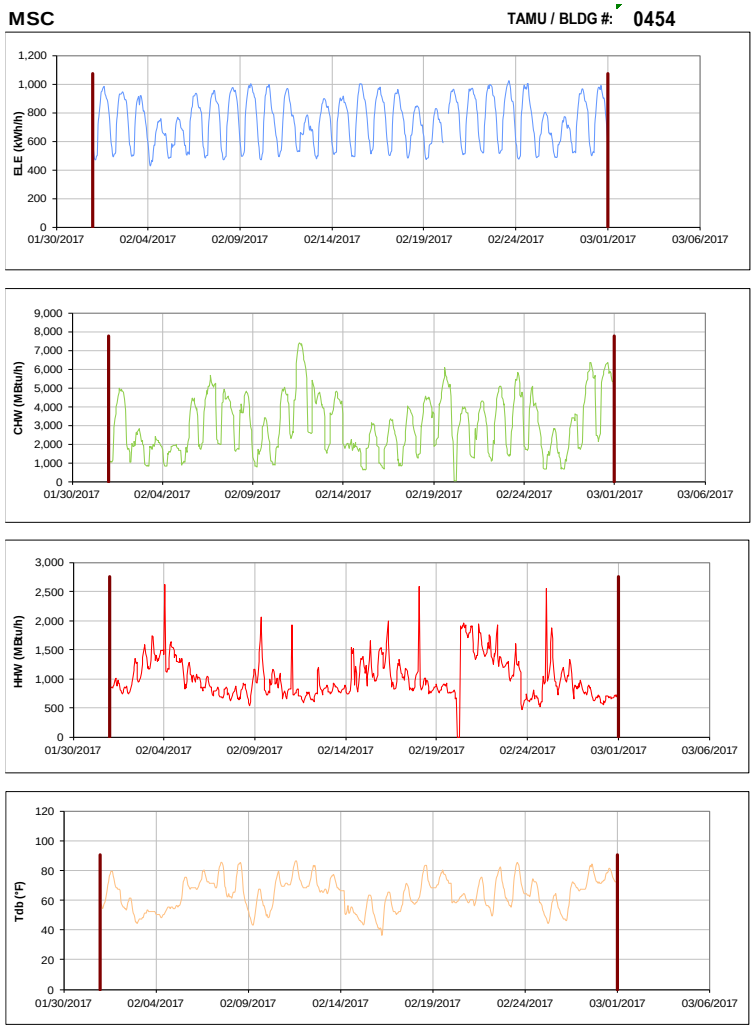



Figure III-67 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for MSC during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

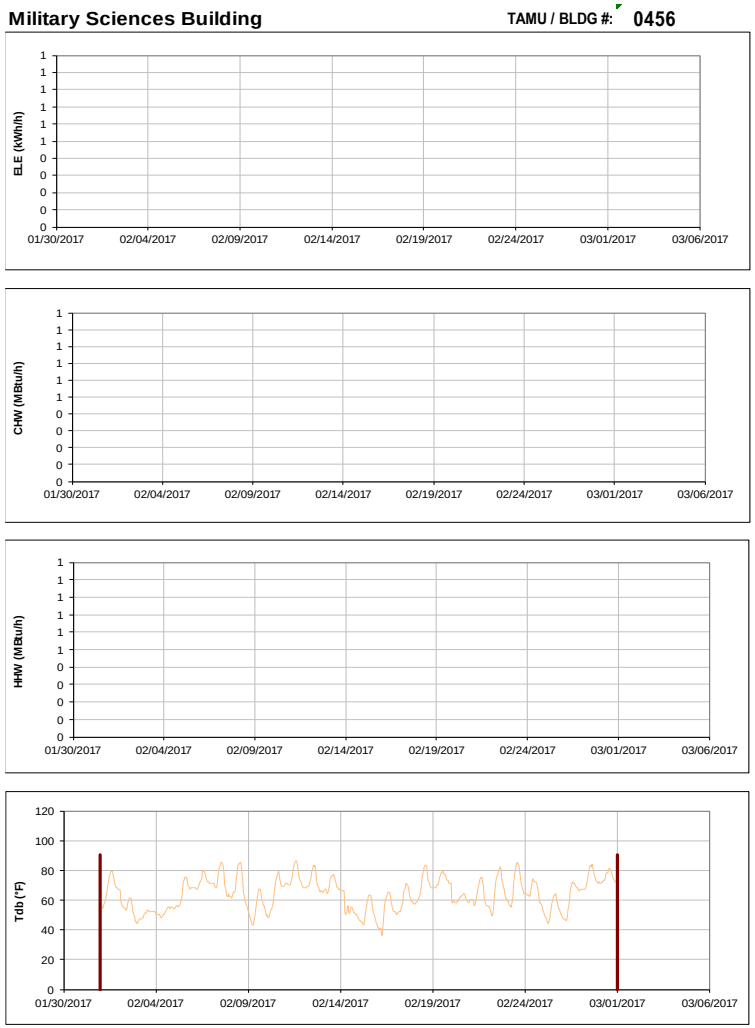



Figure III-68 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Military Sciences Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

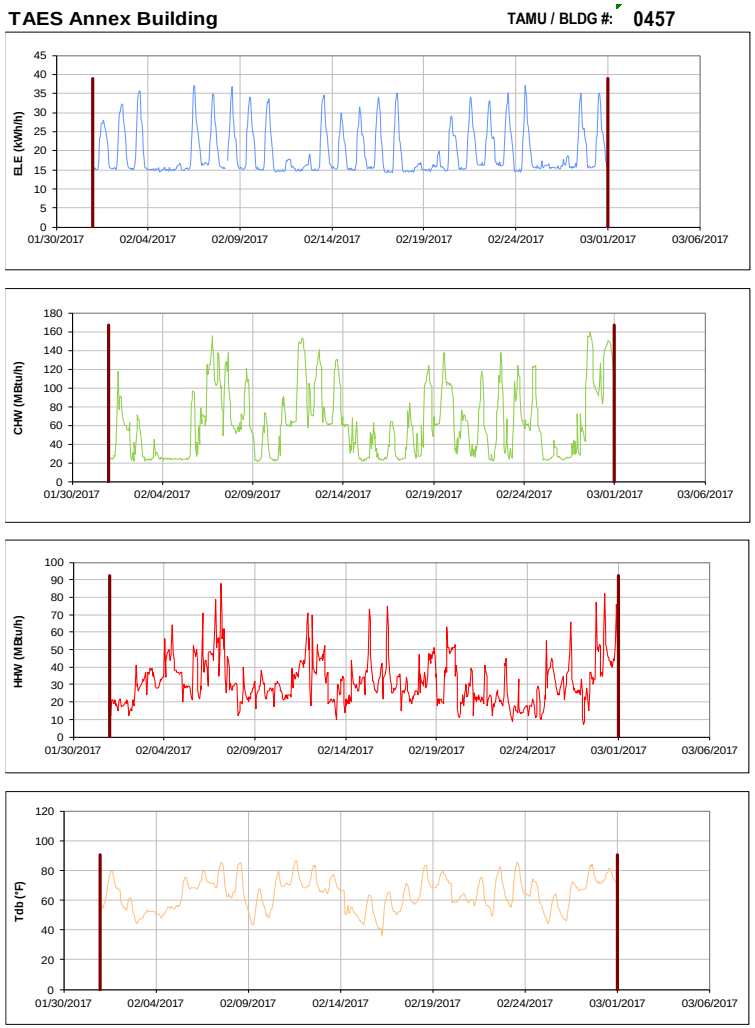



Figure III-69 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TAES Annex Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

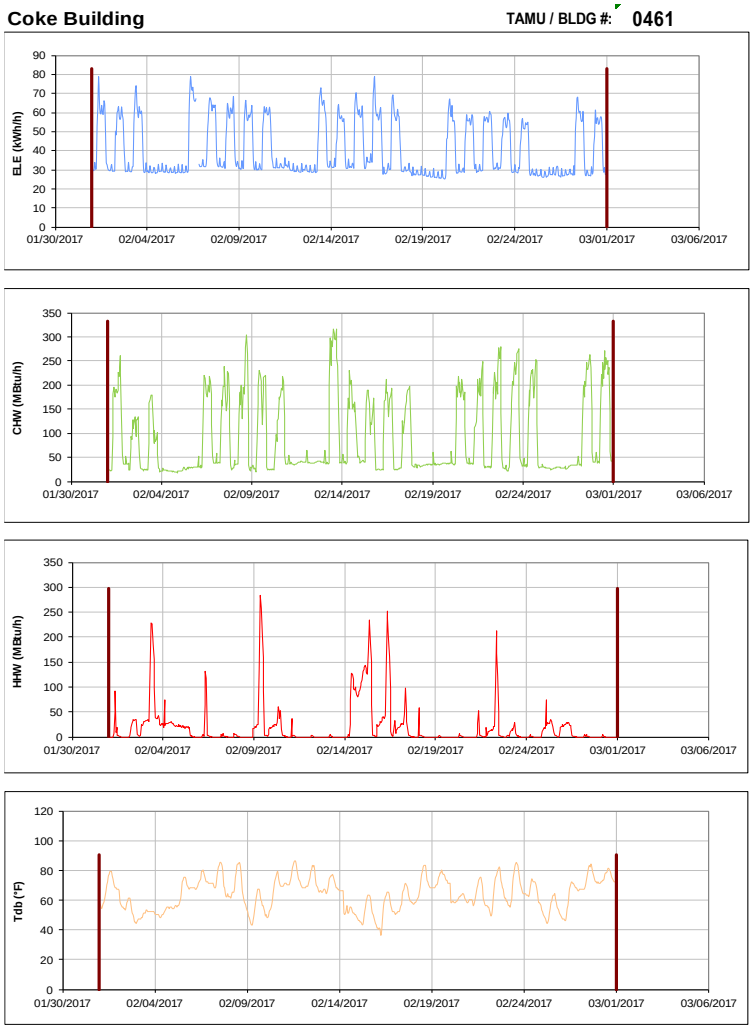



Figure III-70 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Coke Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

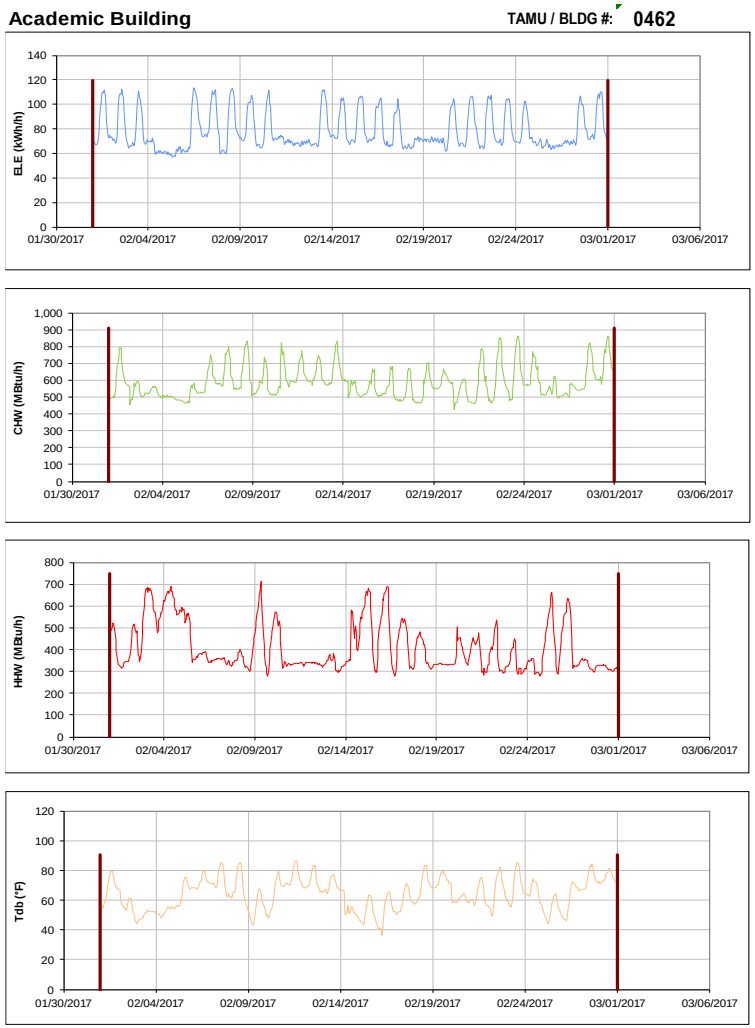



Figure III-71 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Academic Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

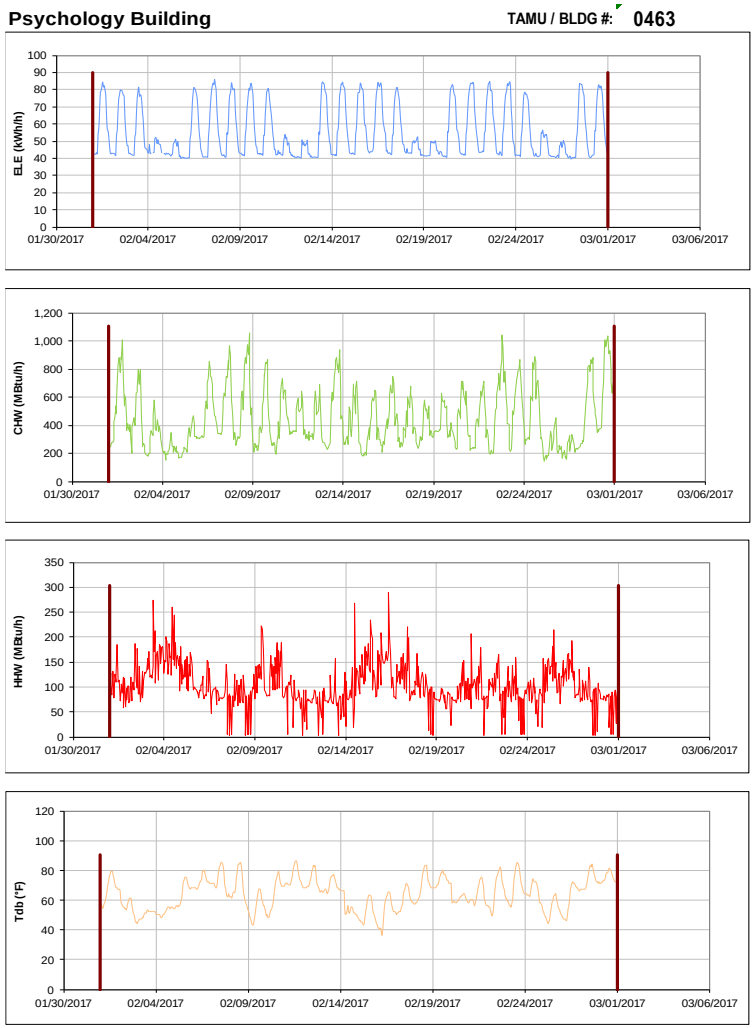



Figure III-72 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Psychology Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

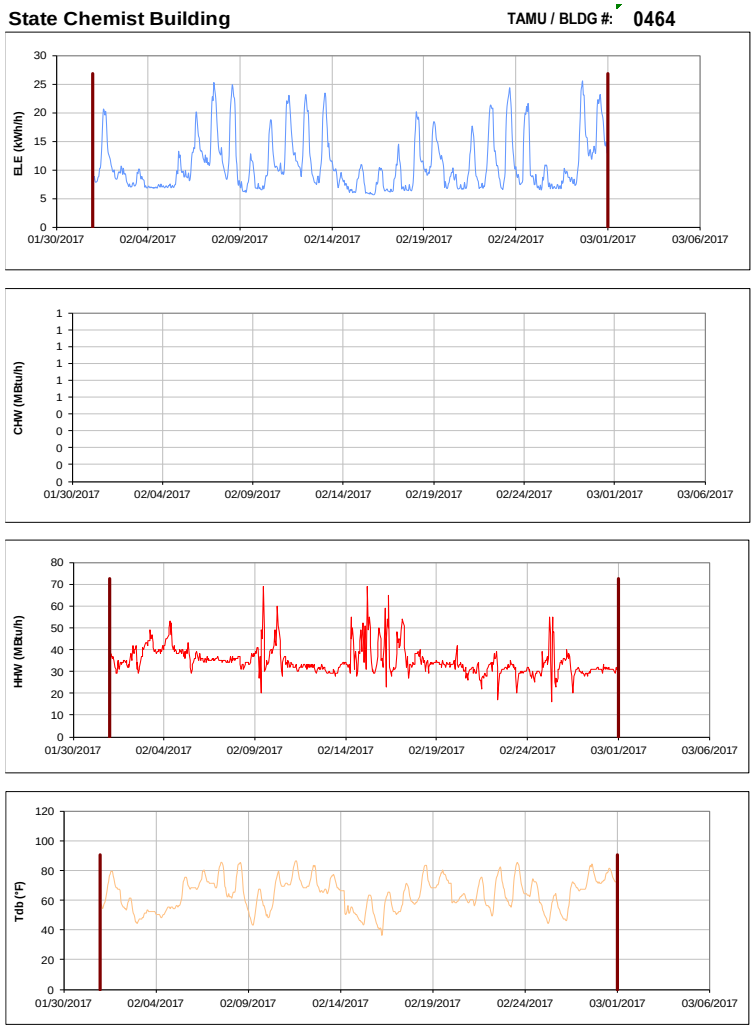



Figure III-73 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for State Chemist Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

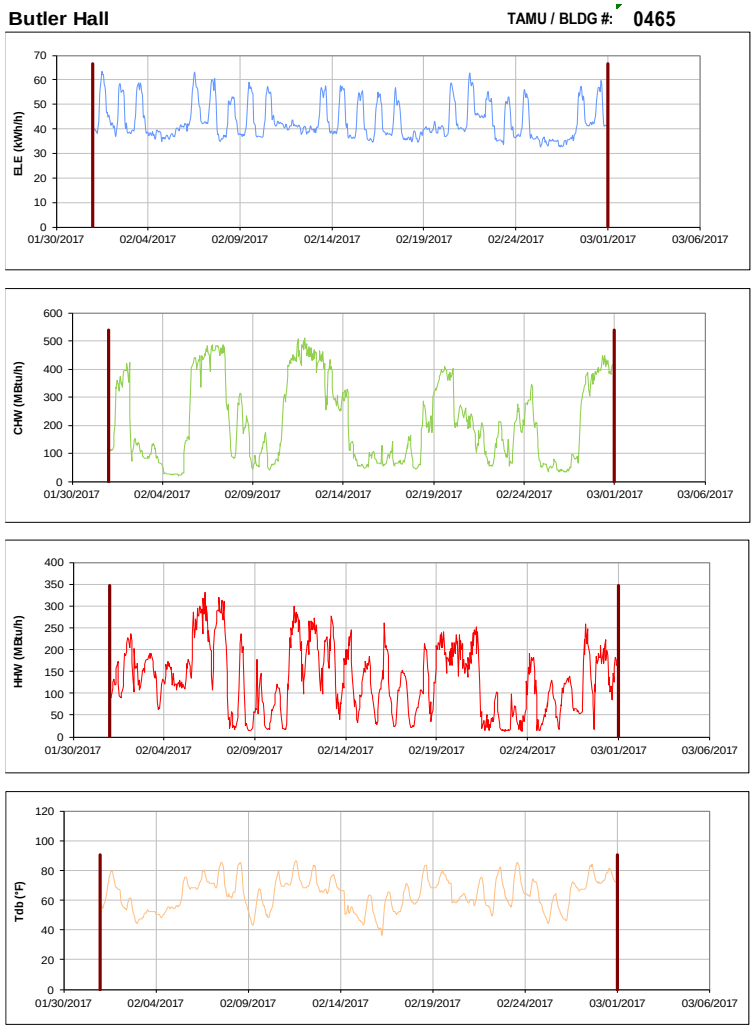



Figure III-74 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Butler Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-75 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biological Sciences Building - East during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

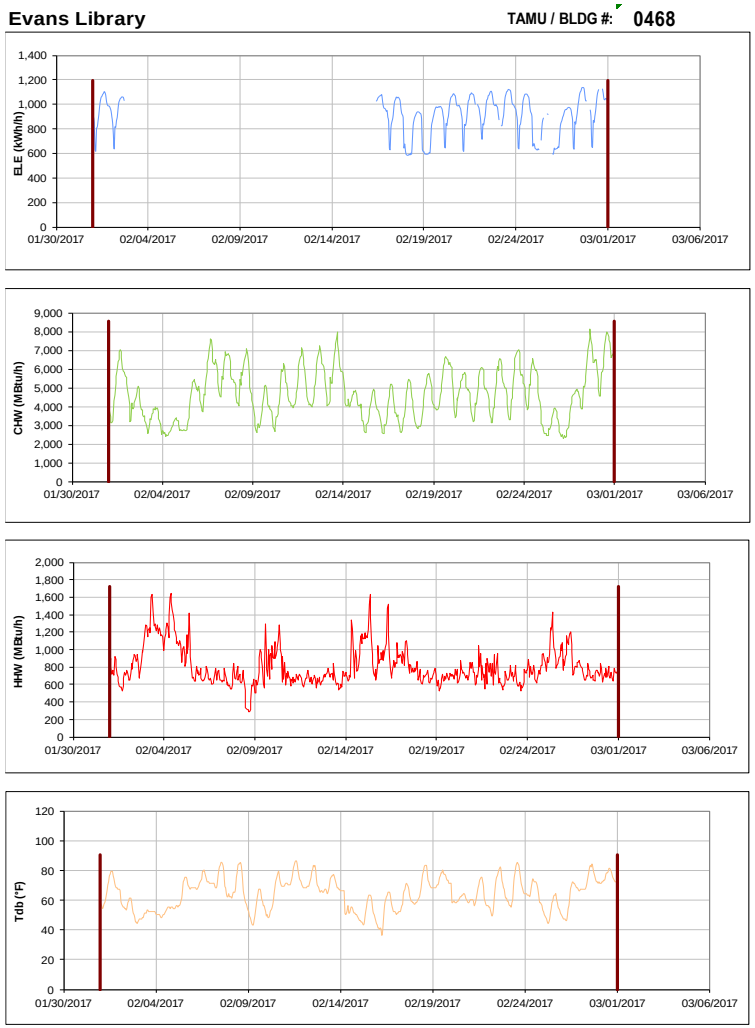



Figure III-76 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Evans Library during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

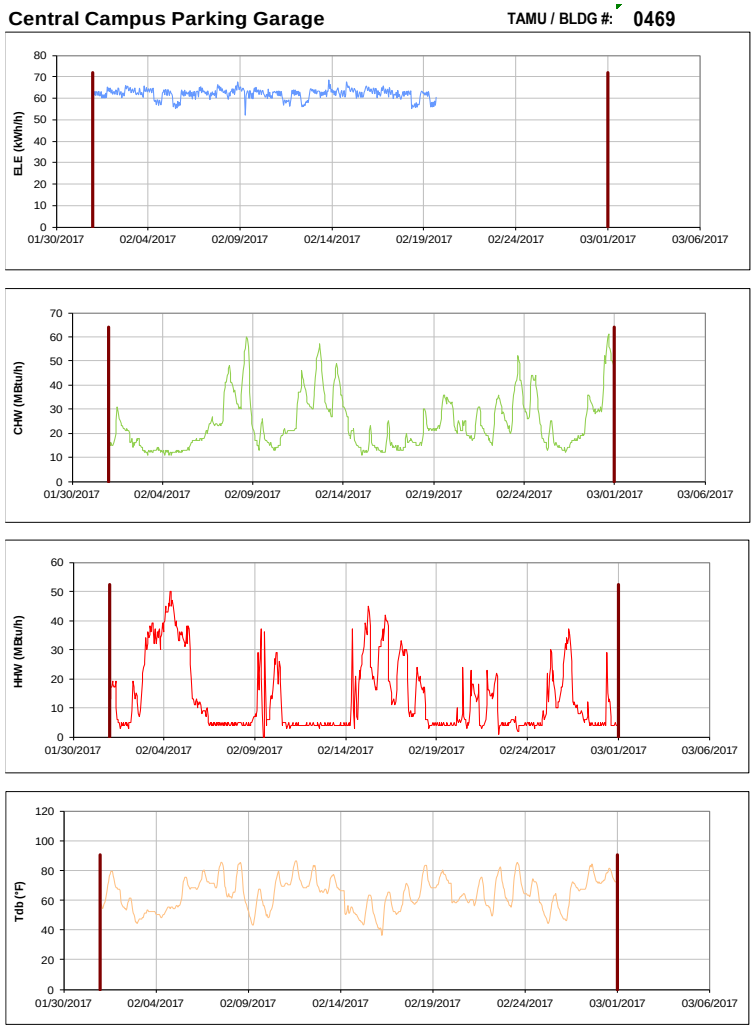



Figure III-77 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Central Campus Parking Garage during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

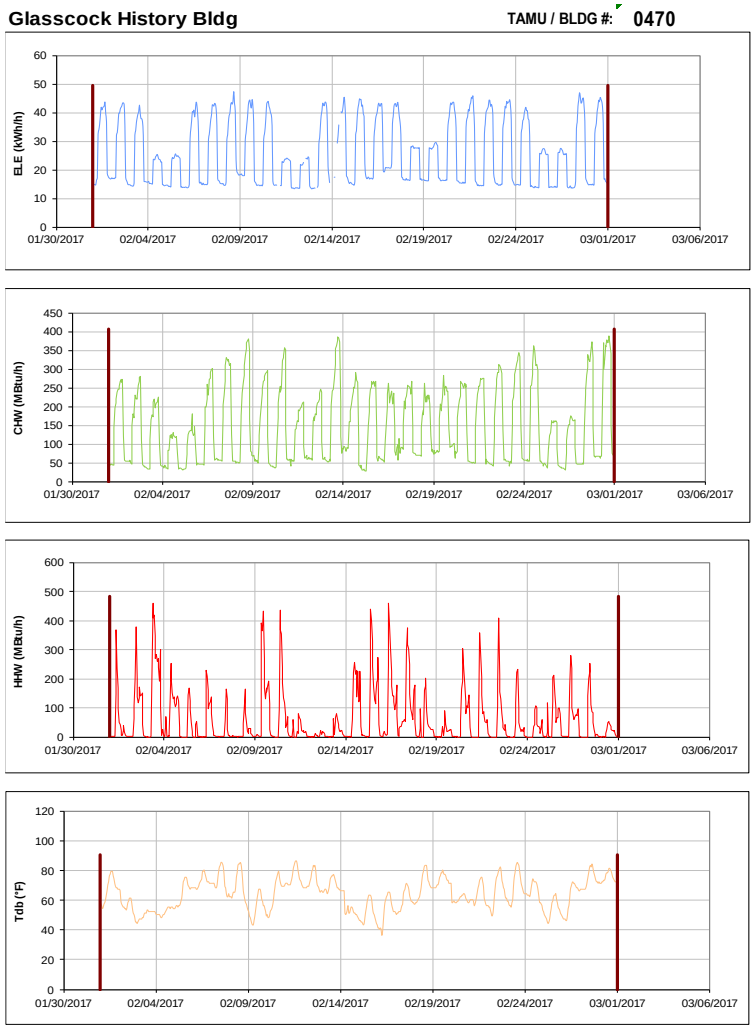



Figure III-78 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Glasscock History Bldg during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

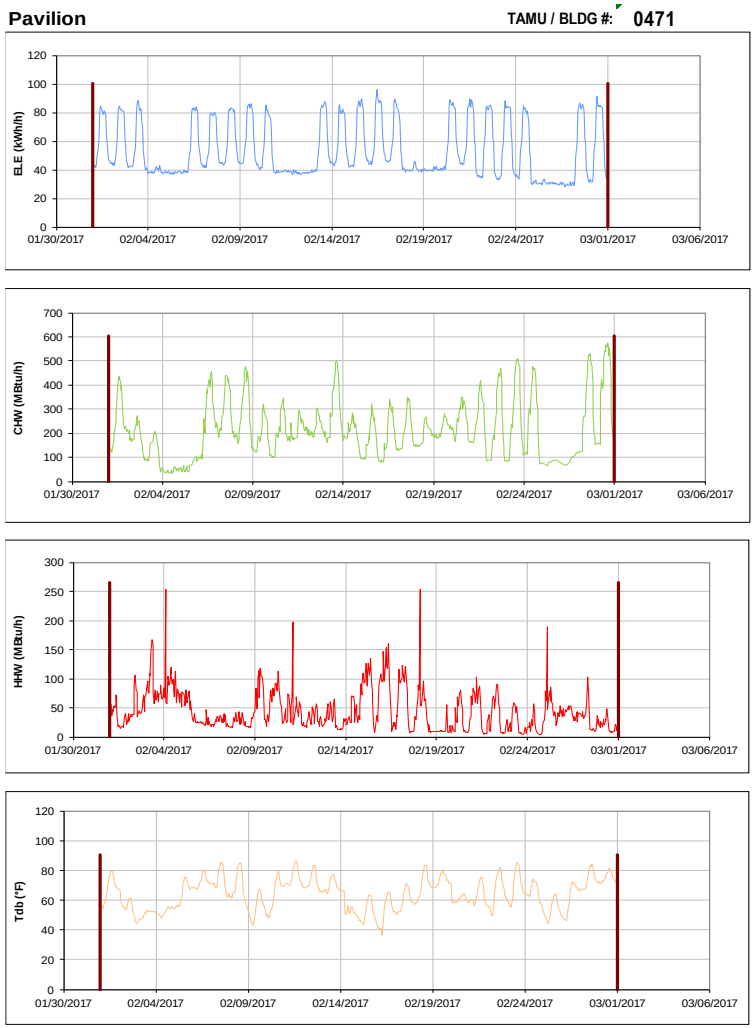



Figure III-79 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Pavilion during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

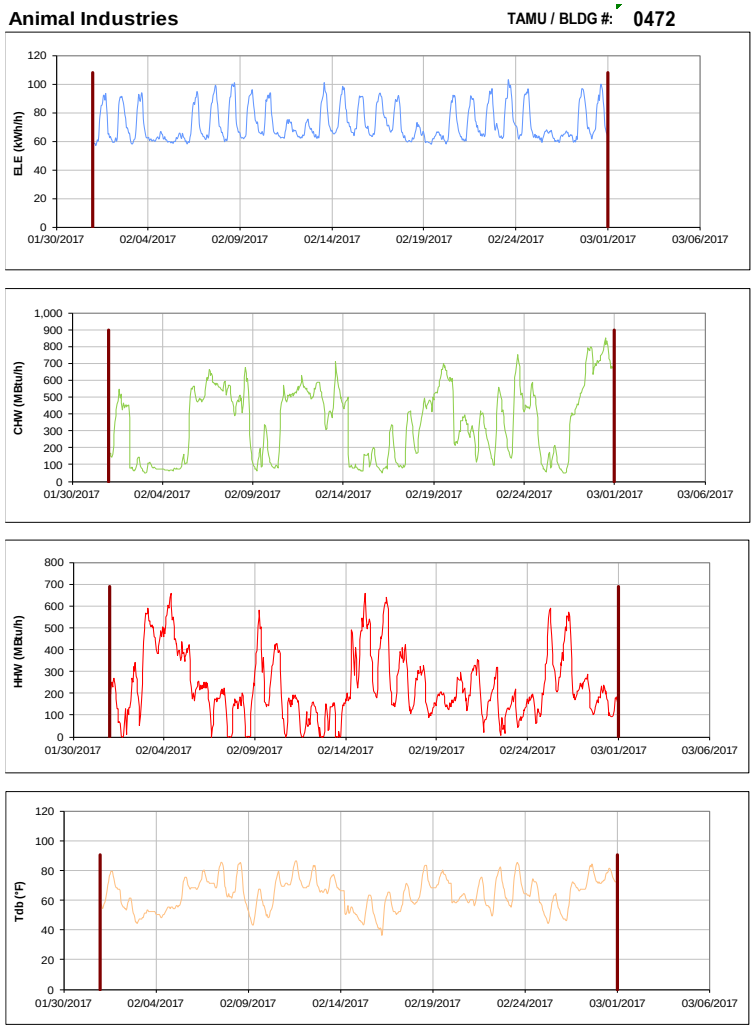



Figure III-80 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Animal Industries during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

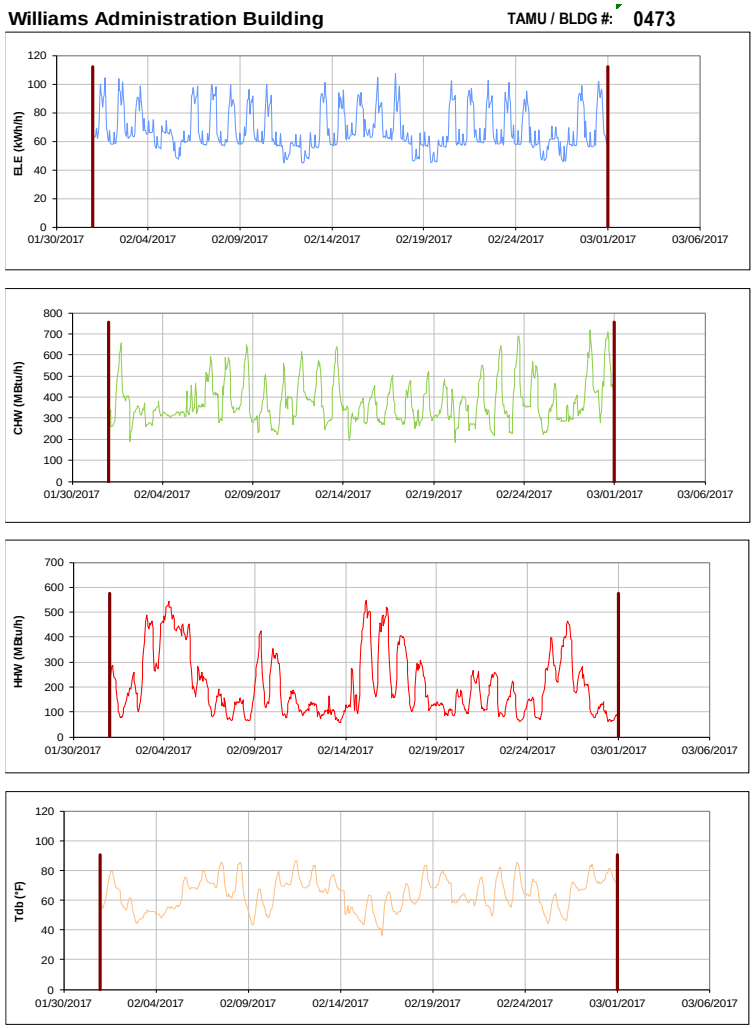



Figure III-81 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Williams Administration Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-82 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for YMCA Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

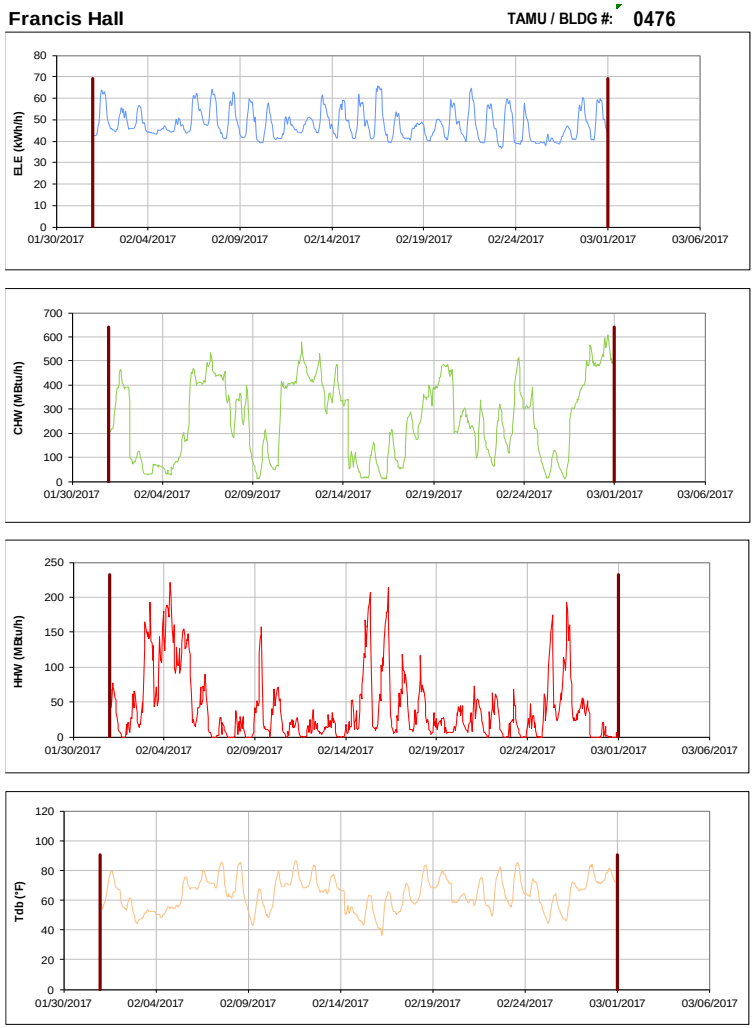



Figure III-83 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Francis Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

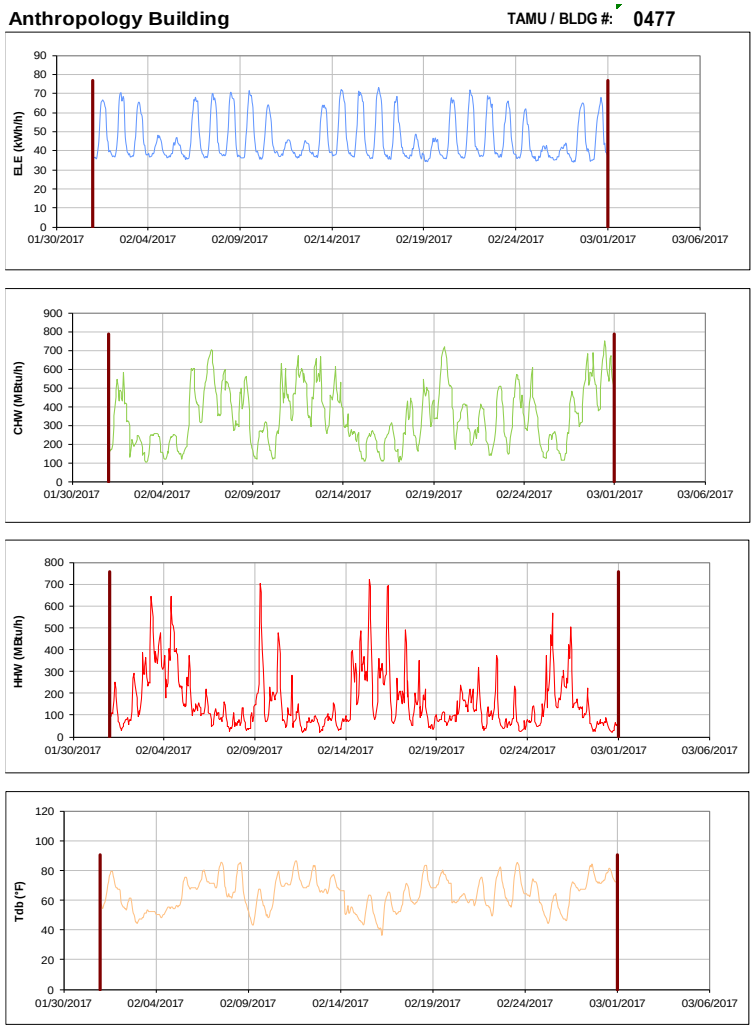



Figure III-84 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Anthropology Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

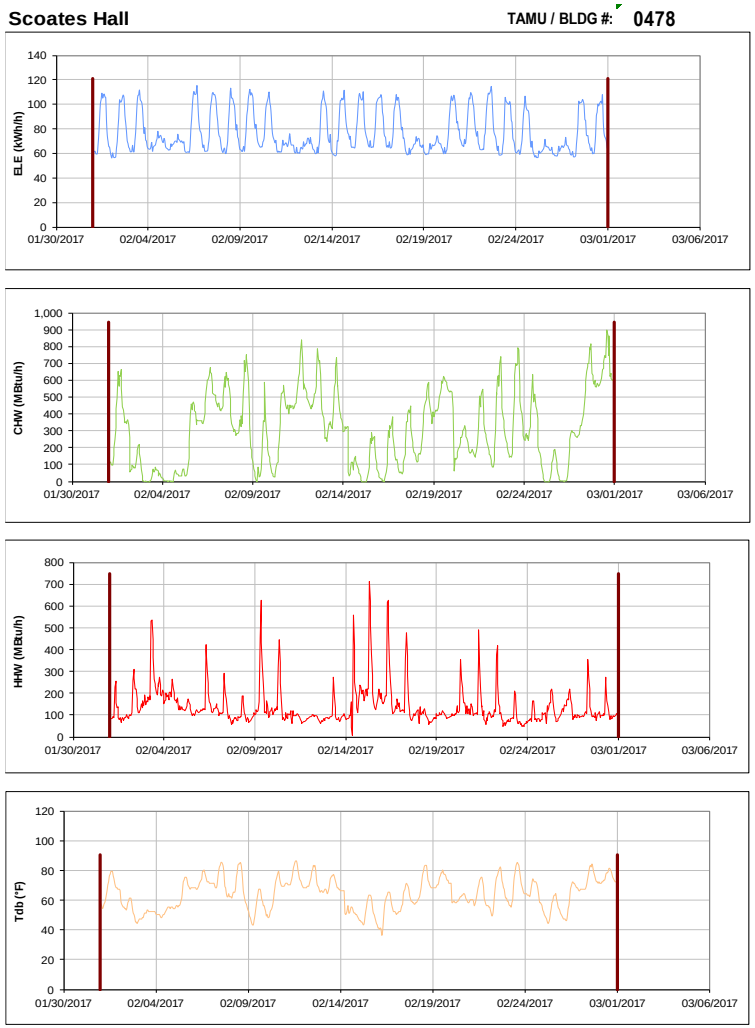



Figure III-85 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Scoates Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-86 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Bolton Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

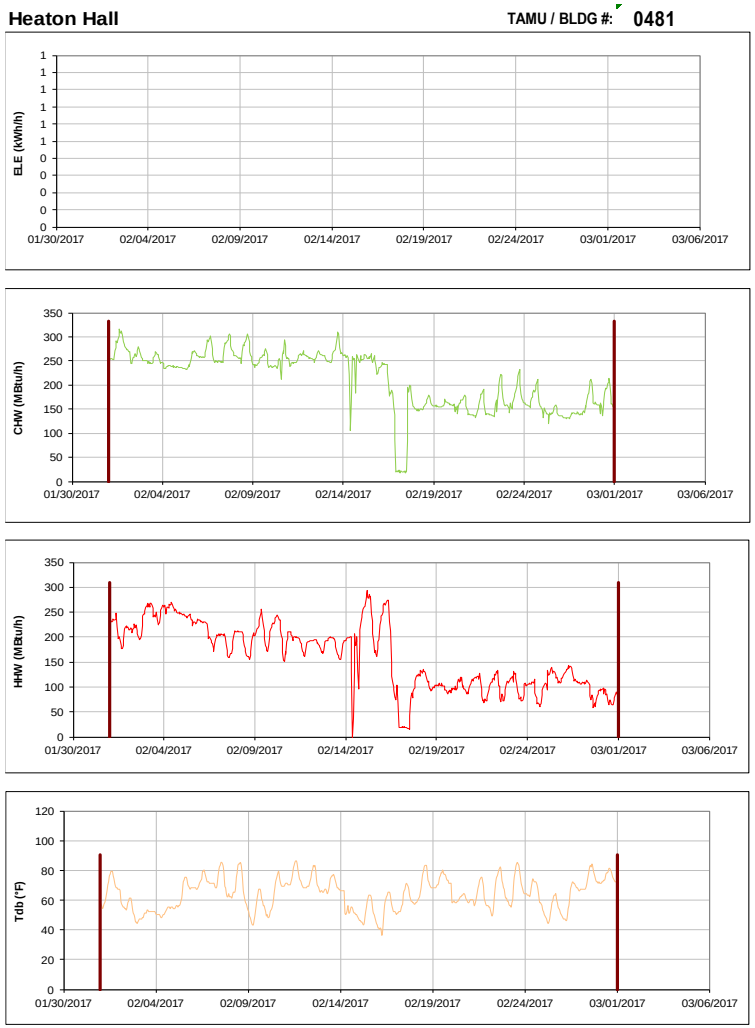



Figure III-87 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heaton Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

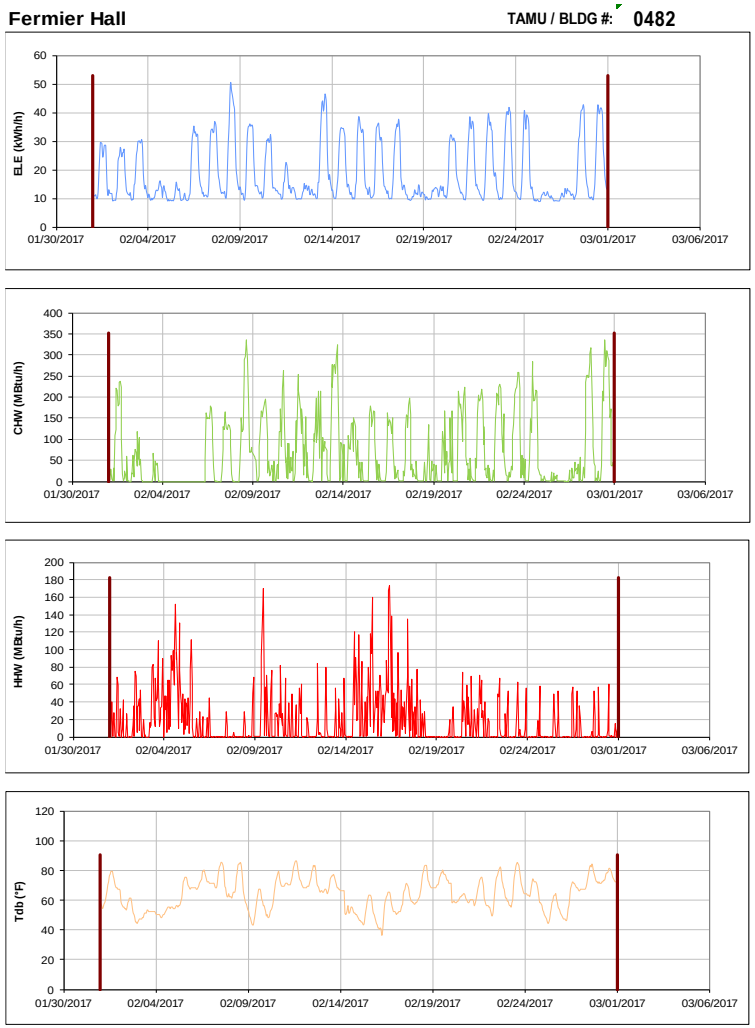



Figure III-88 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Fermier Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

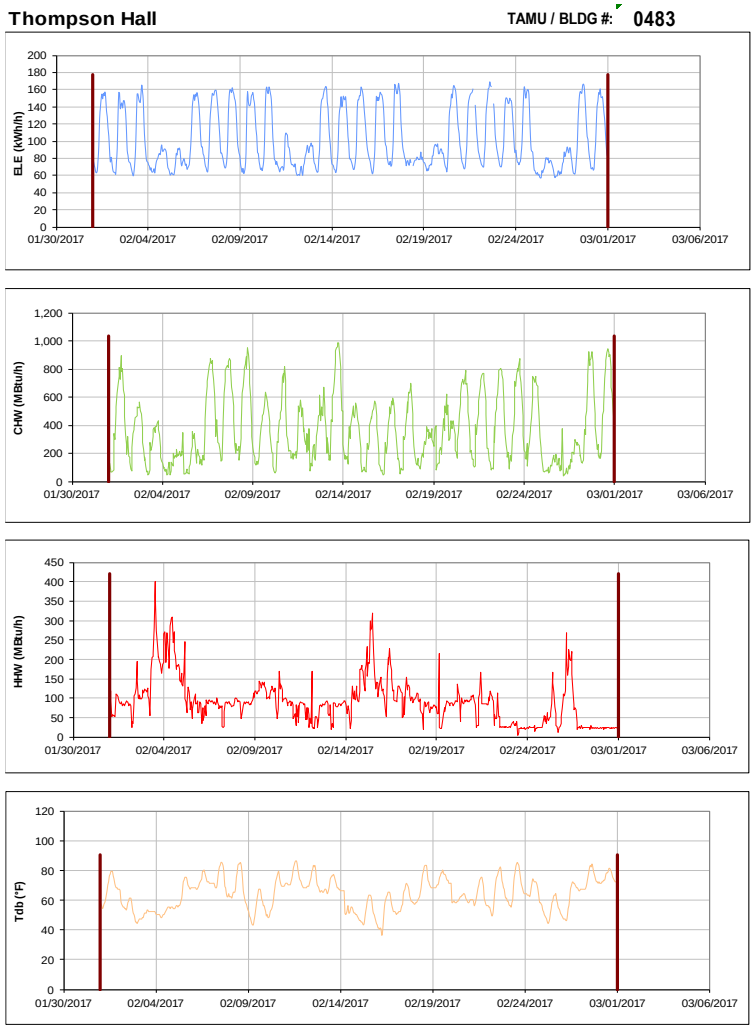



Figure III-89 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Thompson Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

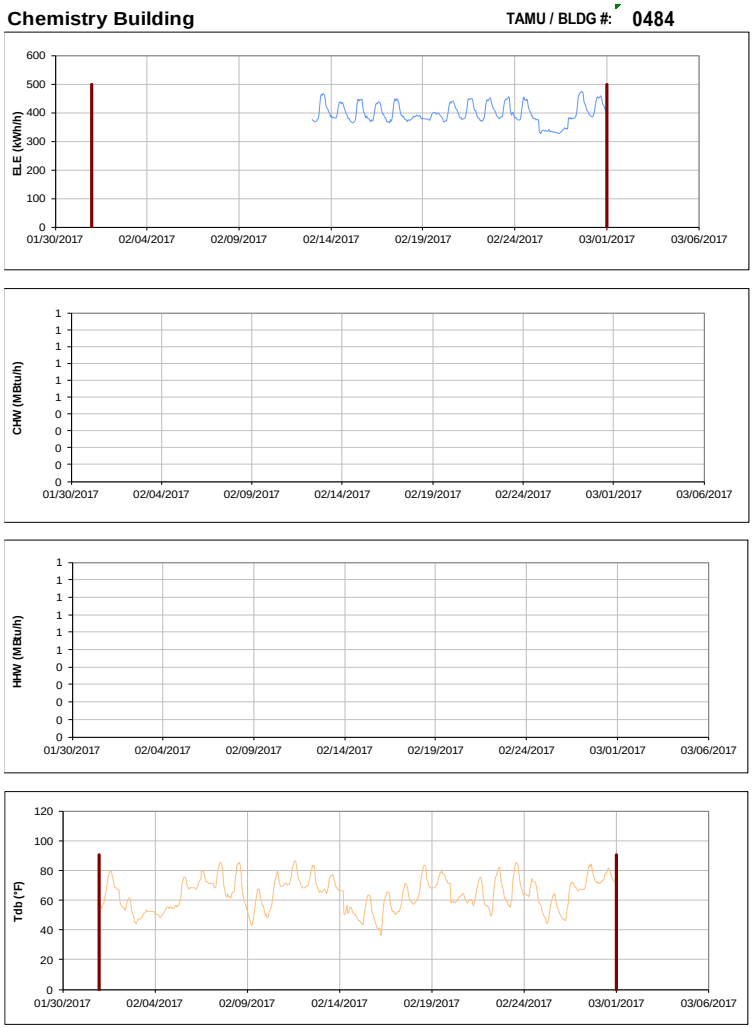



Figure III-90 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Chemistry Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

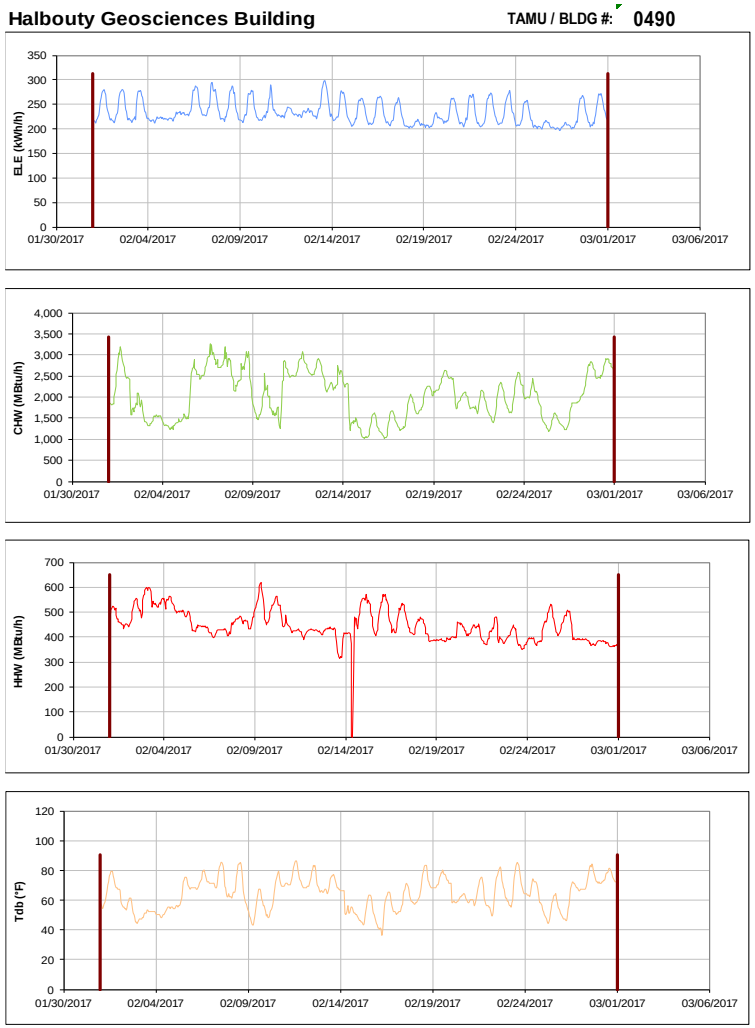



Figure III-91 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Halbouty Geosciences Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

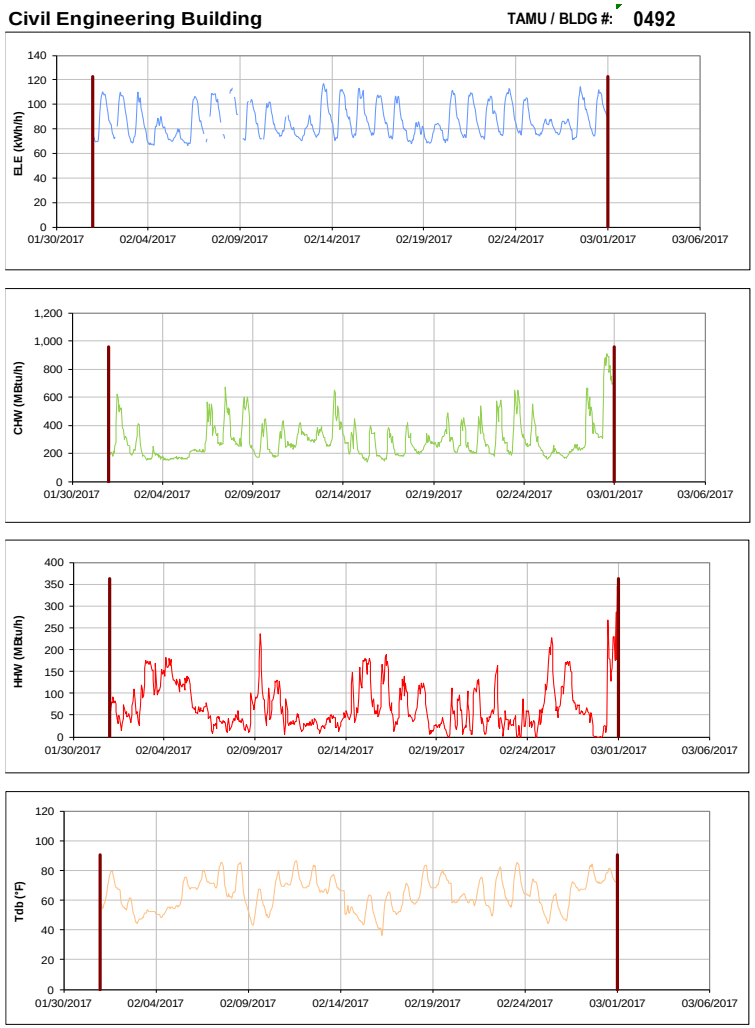



Figure III-92 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Civil Engineering Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

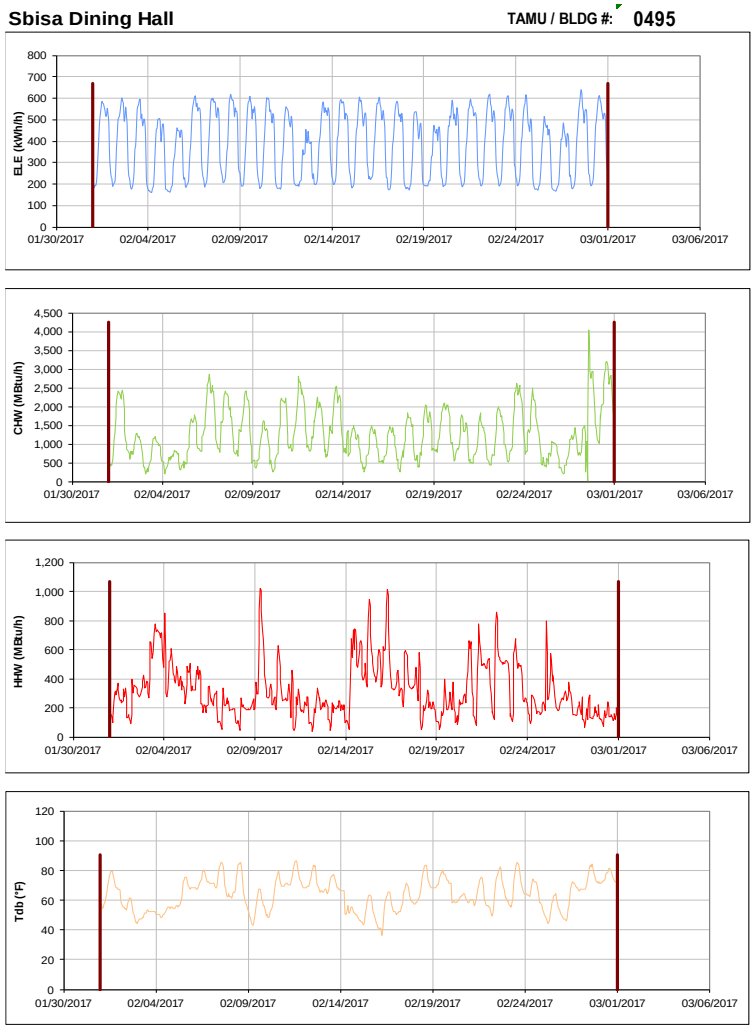



Figure III-93 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Sbisa Dining Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-94 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utilities & Energy Services Central Office during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

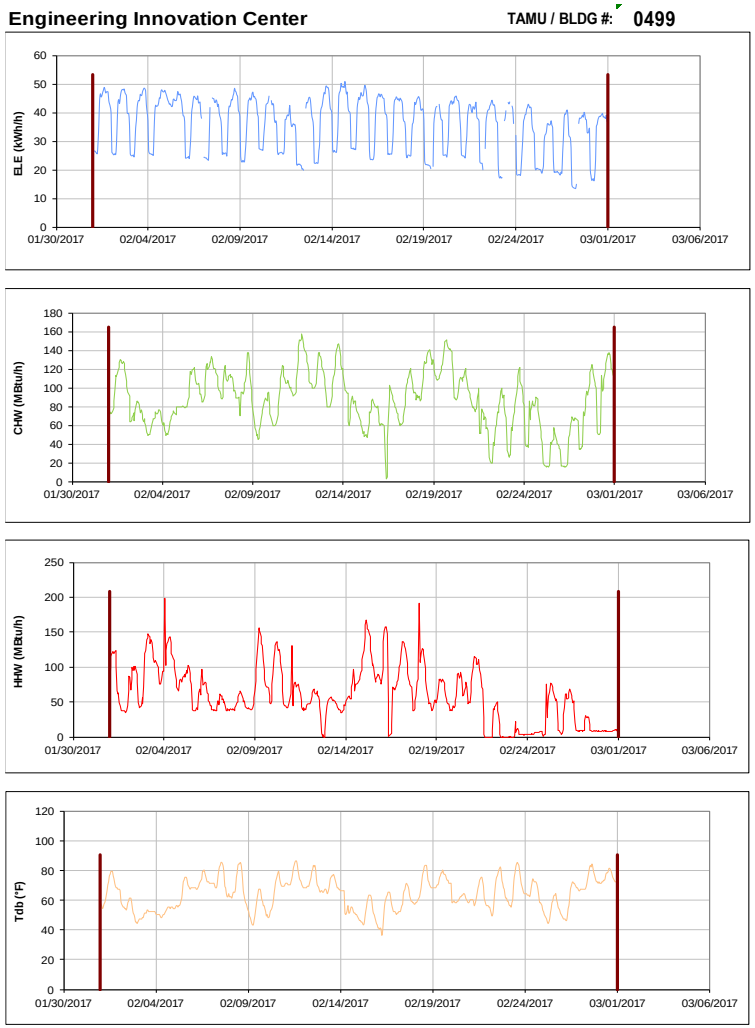



Figure III-95 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Engineering Innovation Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

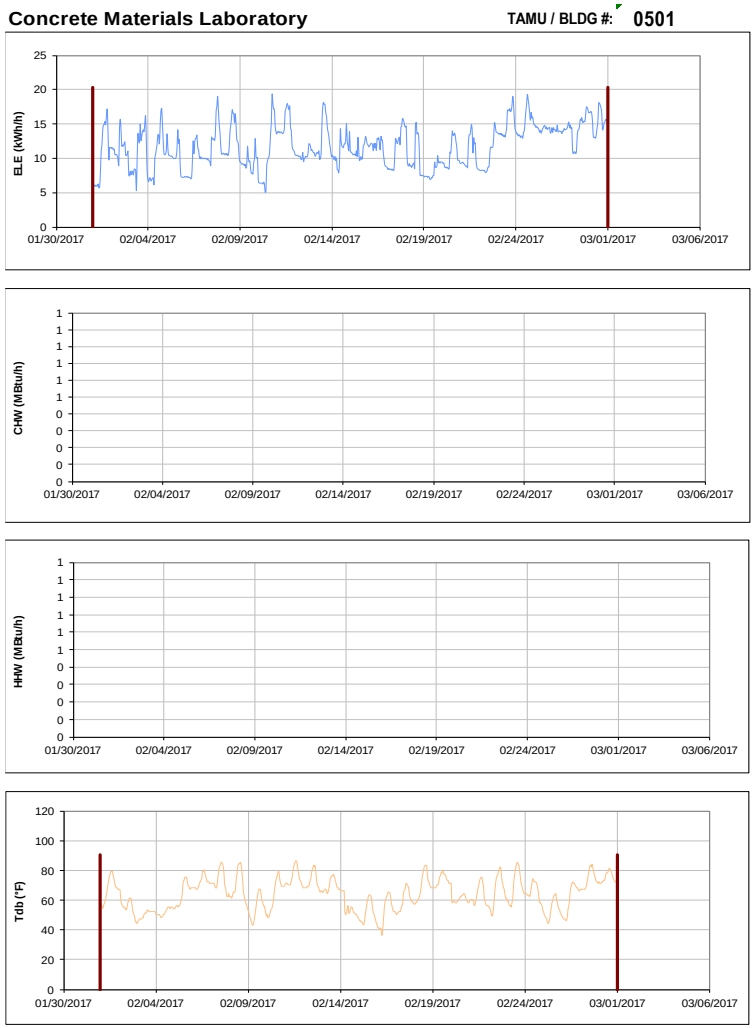



Figure III-96 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Concrete Materials Laboratory during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

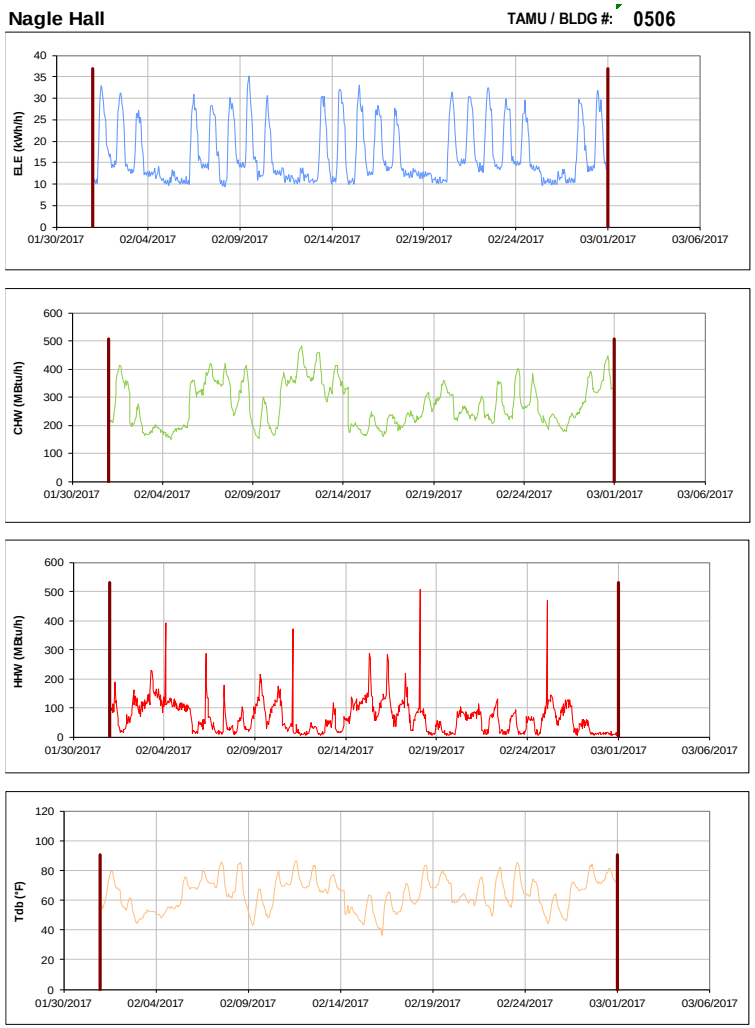



Figure III-97 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Nagle Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

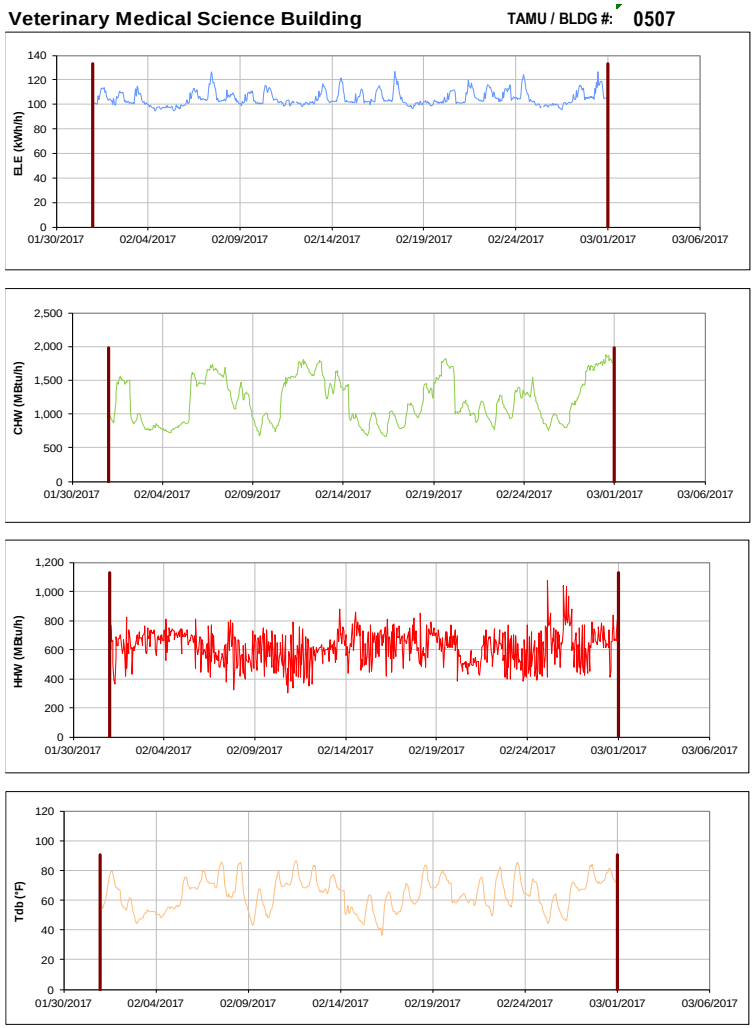



Figure III-98 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Medical Science Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

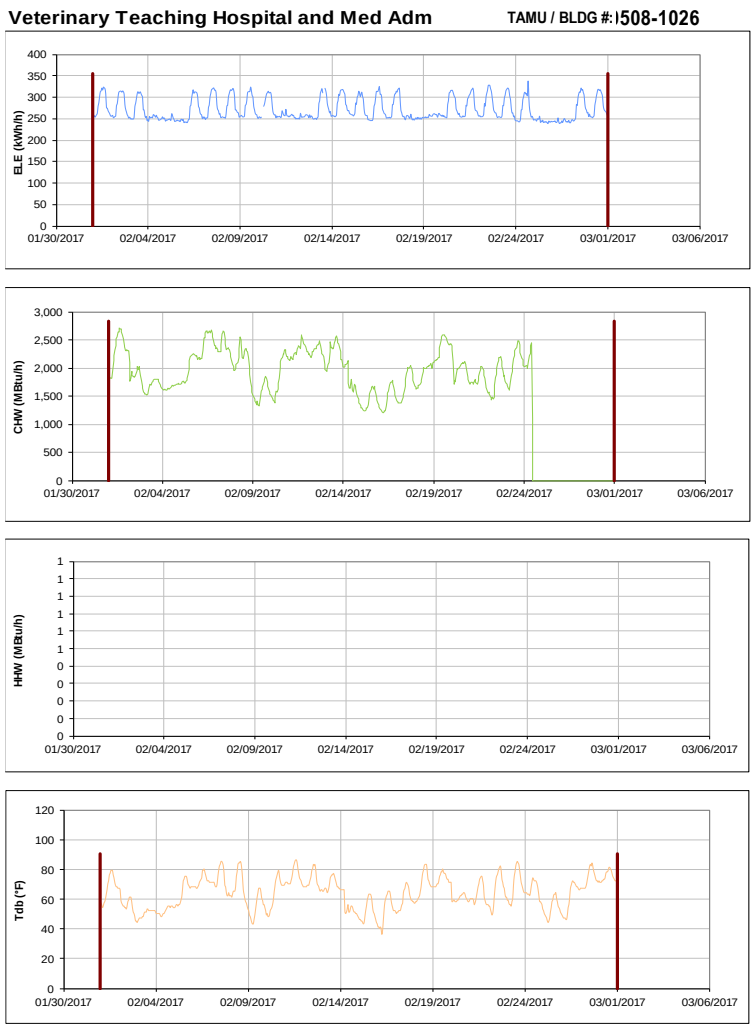



Figure III-99 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Teaching Hospital and Med Adm during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-100 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heep Laboratory Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

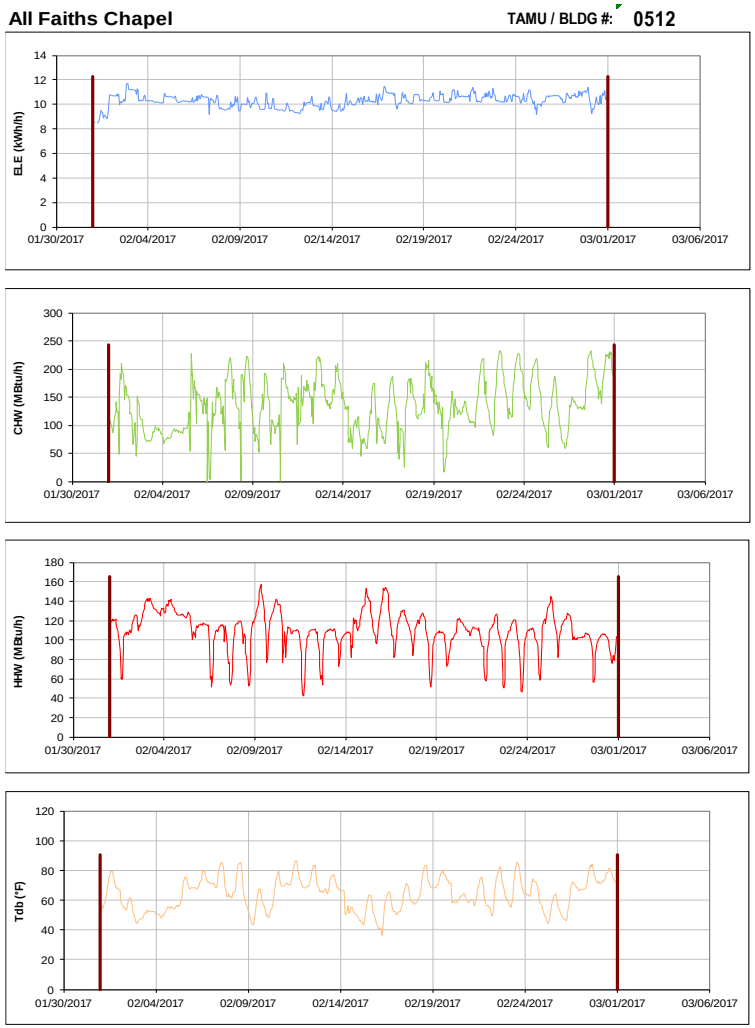



Figure III-101 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for All Faiths Chapel during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

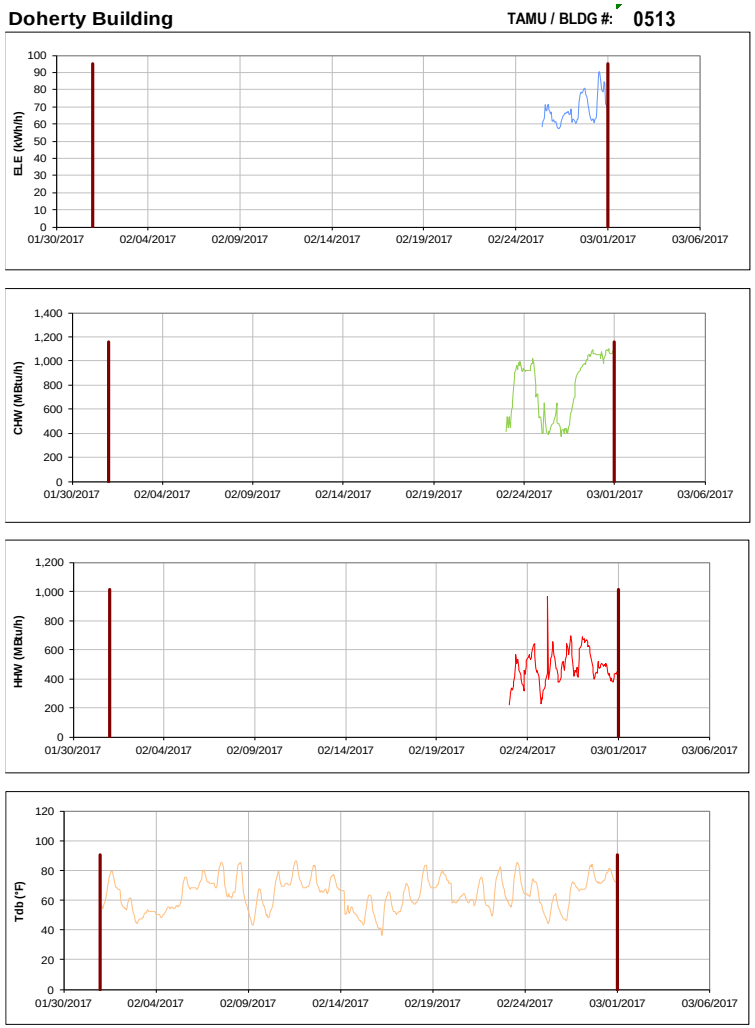



Figure III-102 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Doherty Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

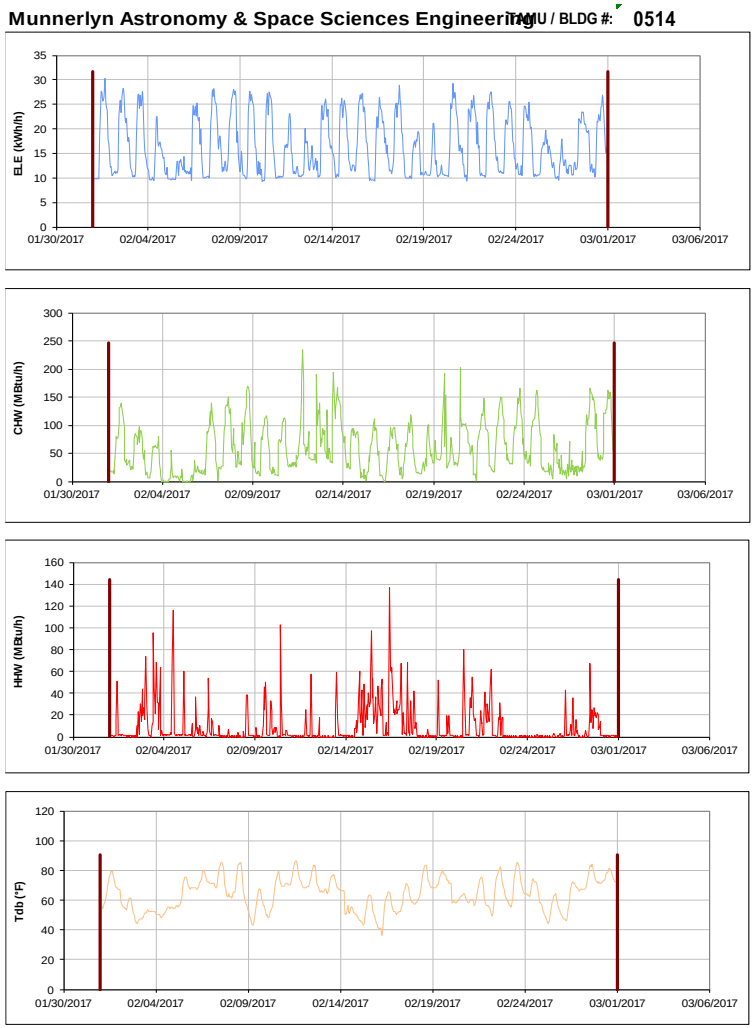



Figure III-103 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Munnerlyn Astronomy & Space Sciences Engineering during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

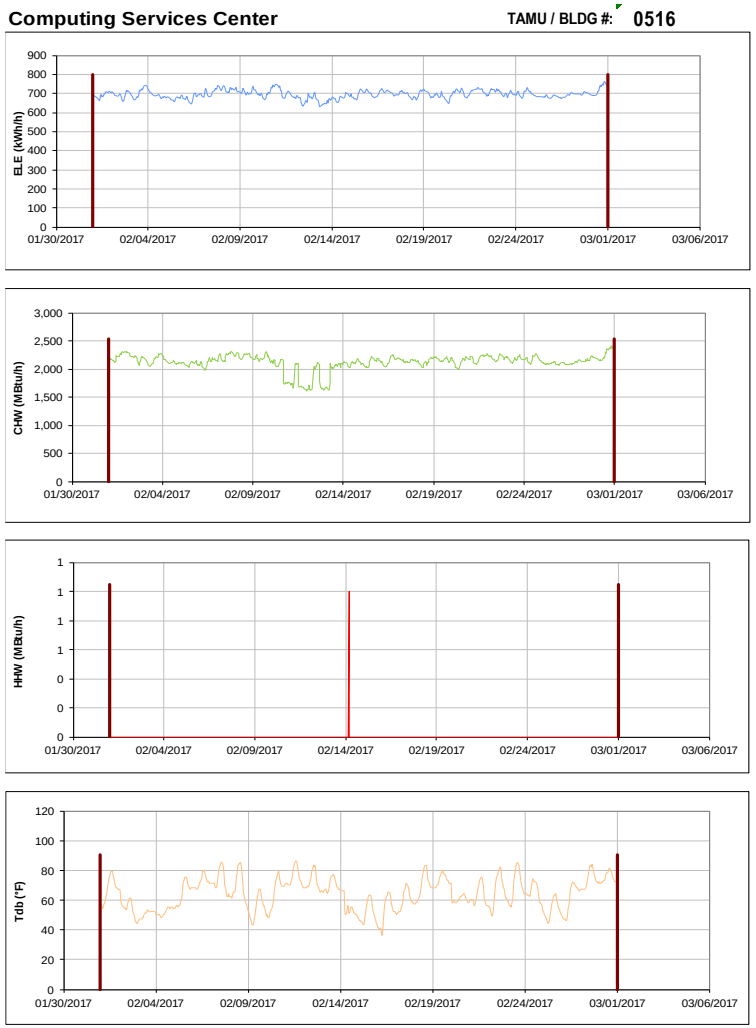



Figure III-104 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Computing Services Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

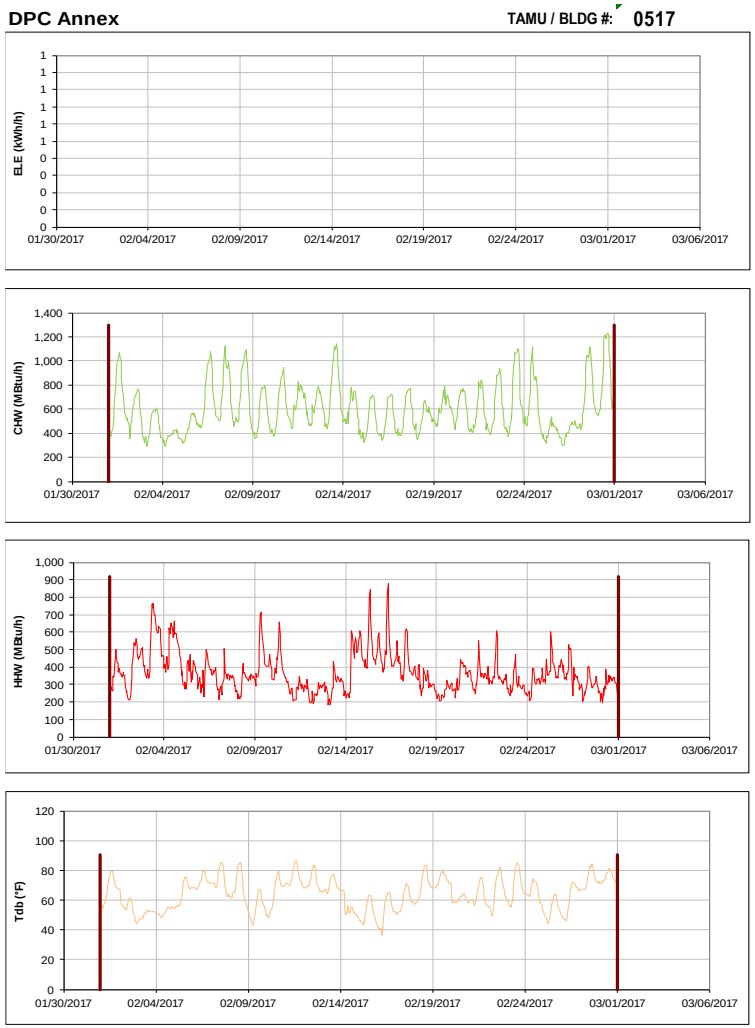



Figure III-105 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for DPC Annex during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

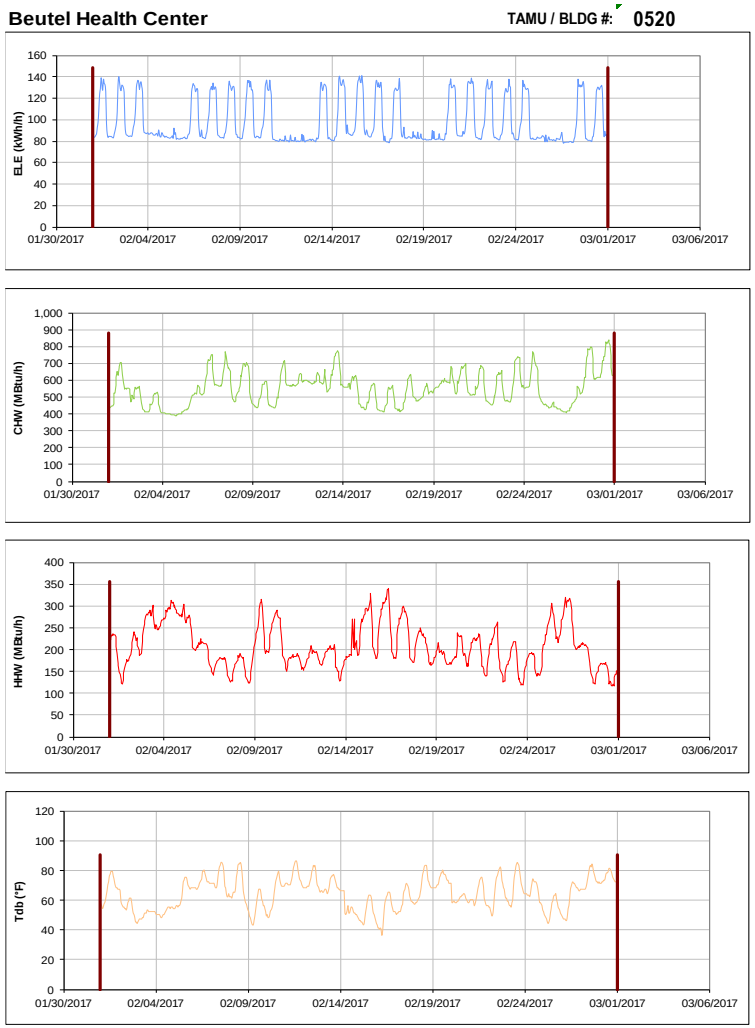



Figure III-106 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Beutel Health Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

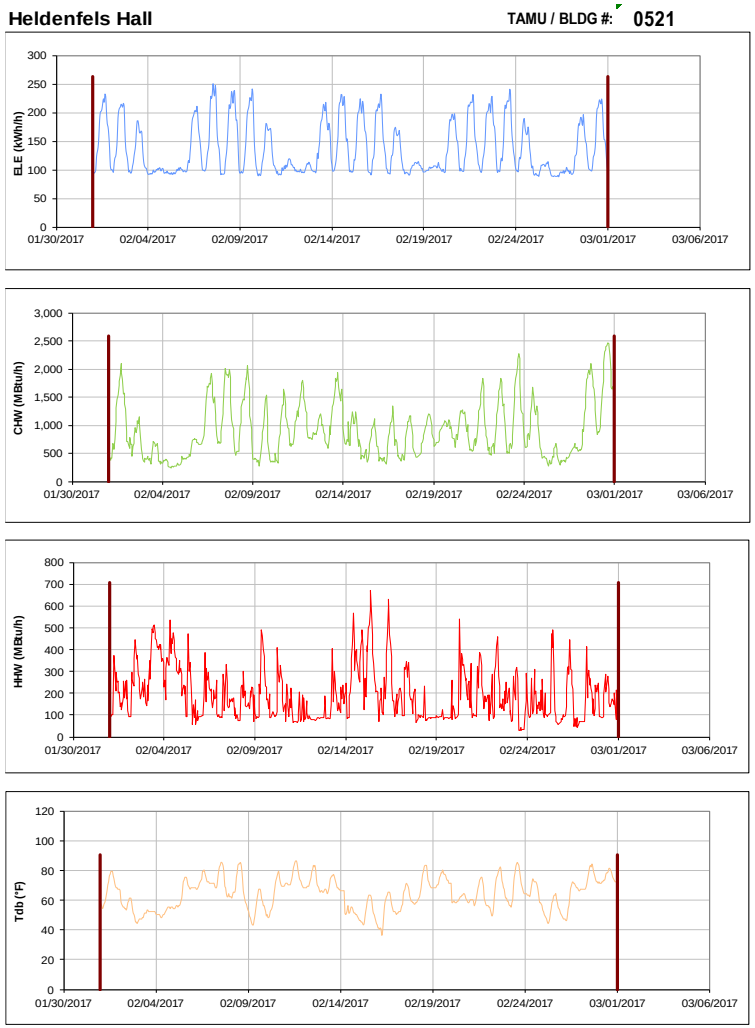



Figure III-107 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heldenfels Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

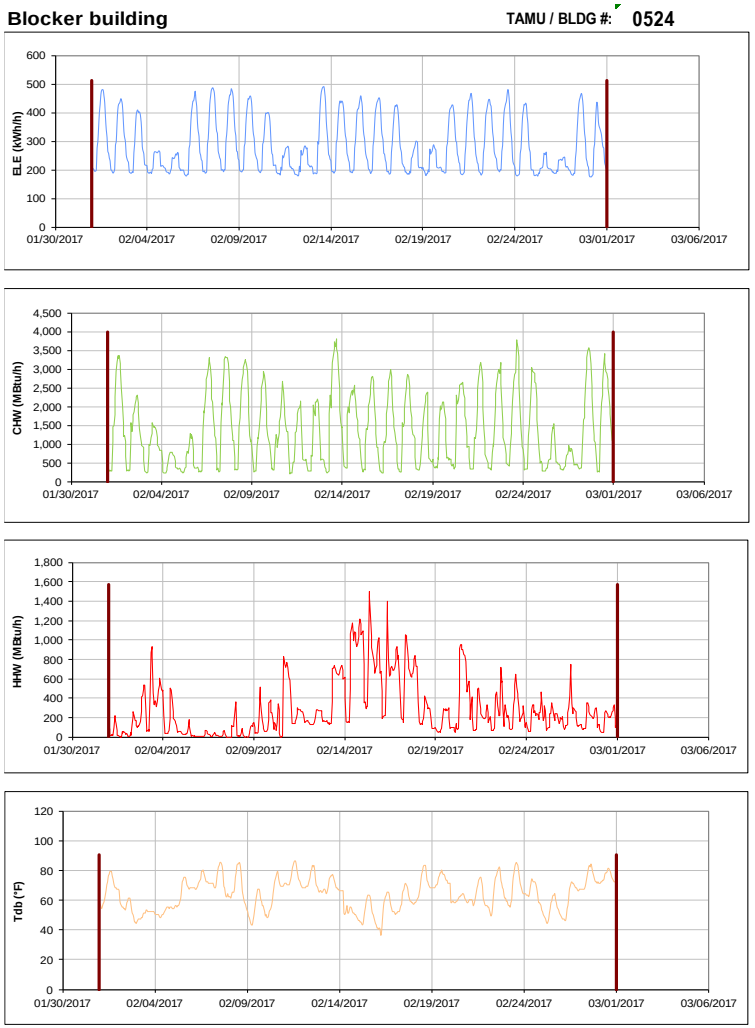



Figure III-108 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Blocker building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

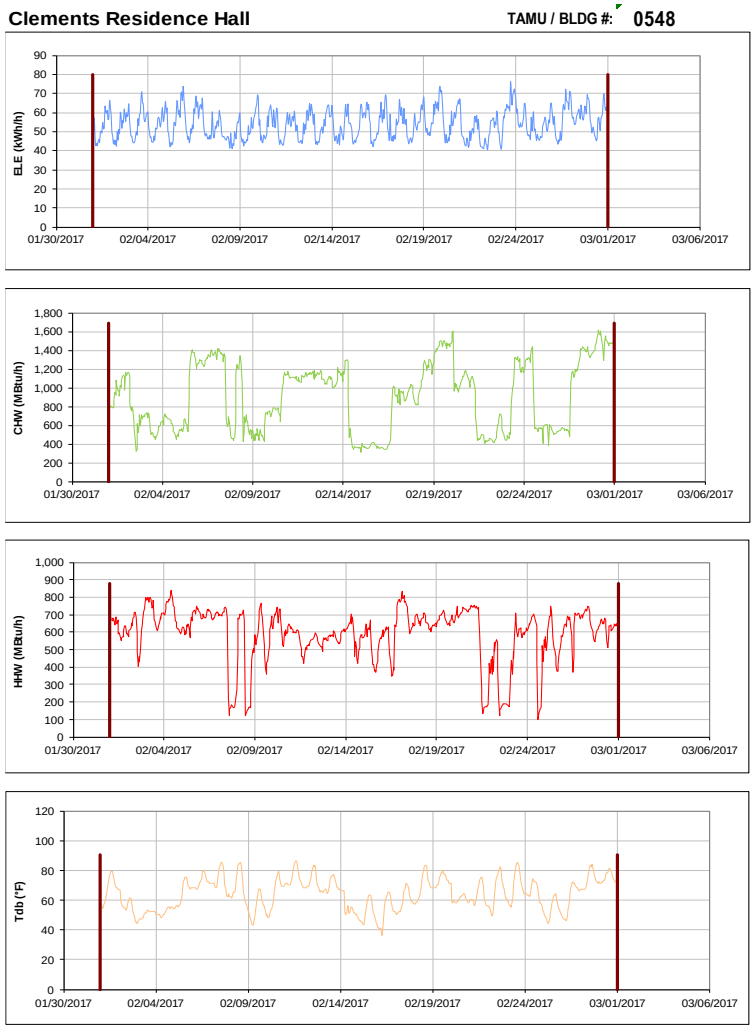



Figure III-109 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Clements Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

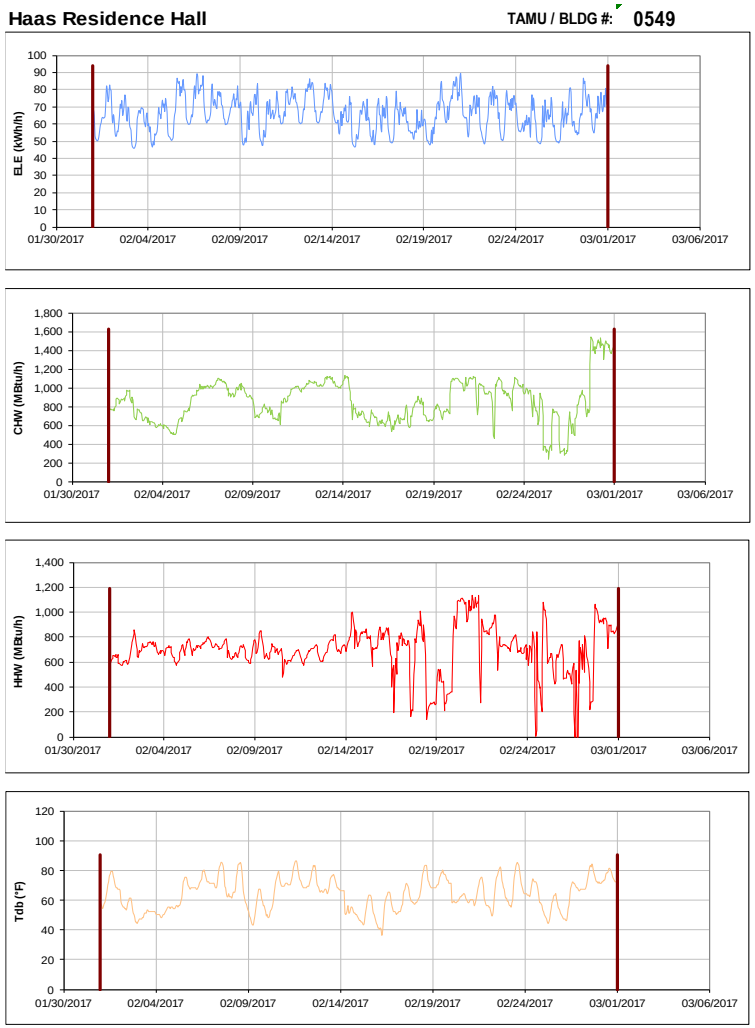



Figure III-110 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Haas Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

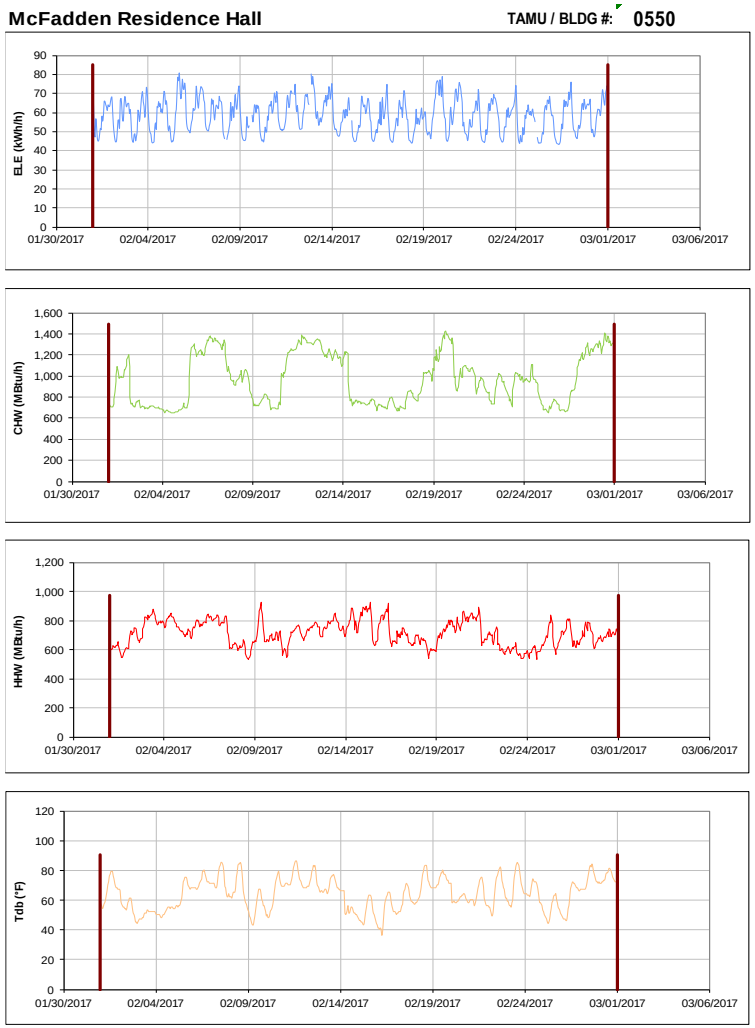



Figure III-111 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for McFadden Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

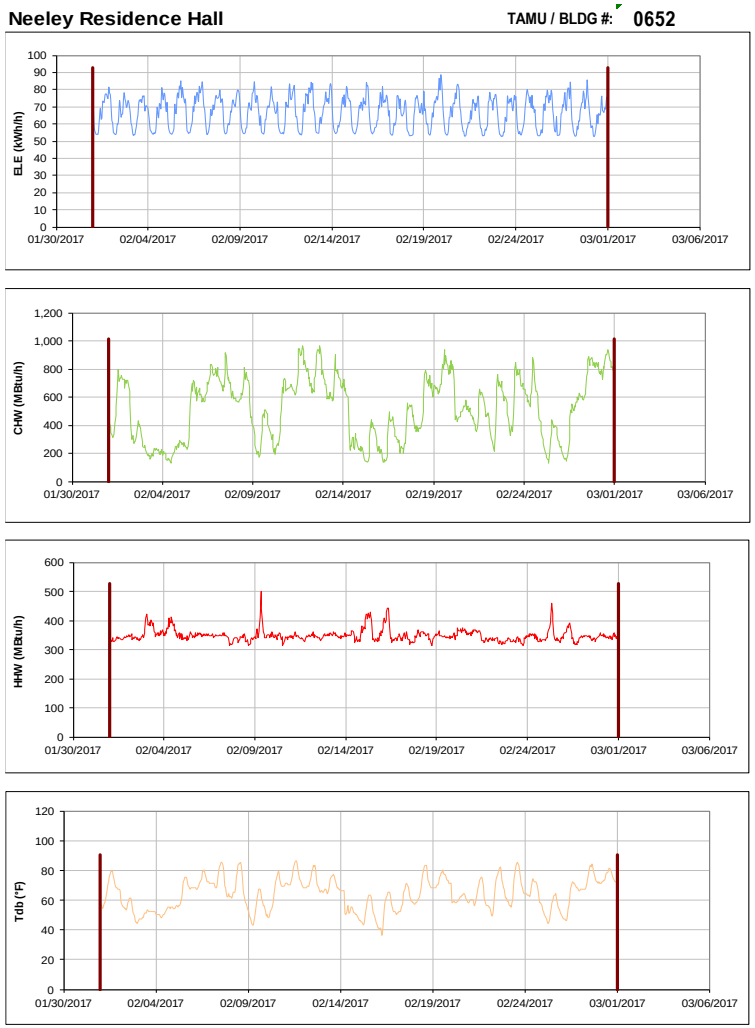



Figure III-112 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Neeley Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

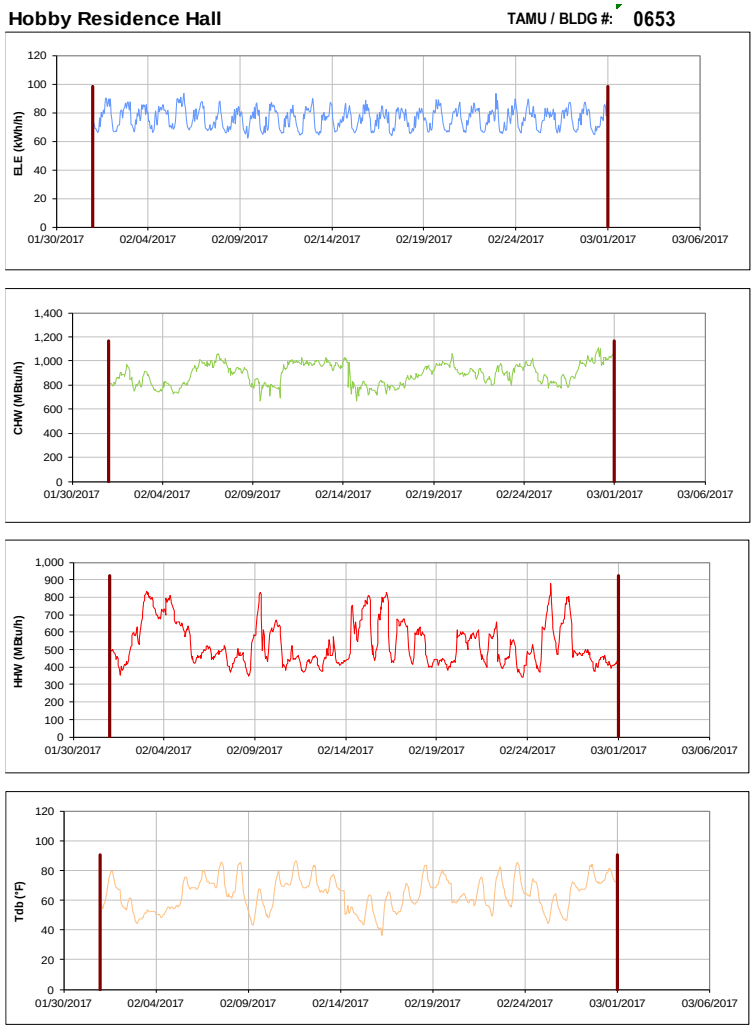



Figure III-113 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Hobby Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

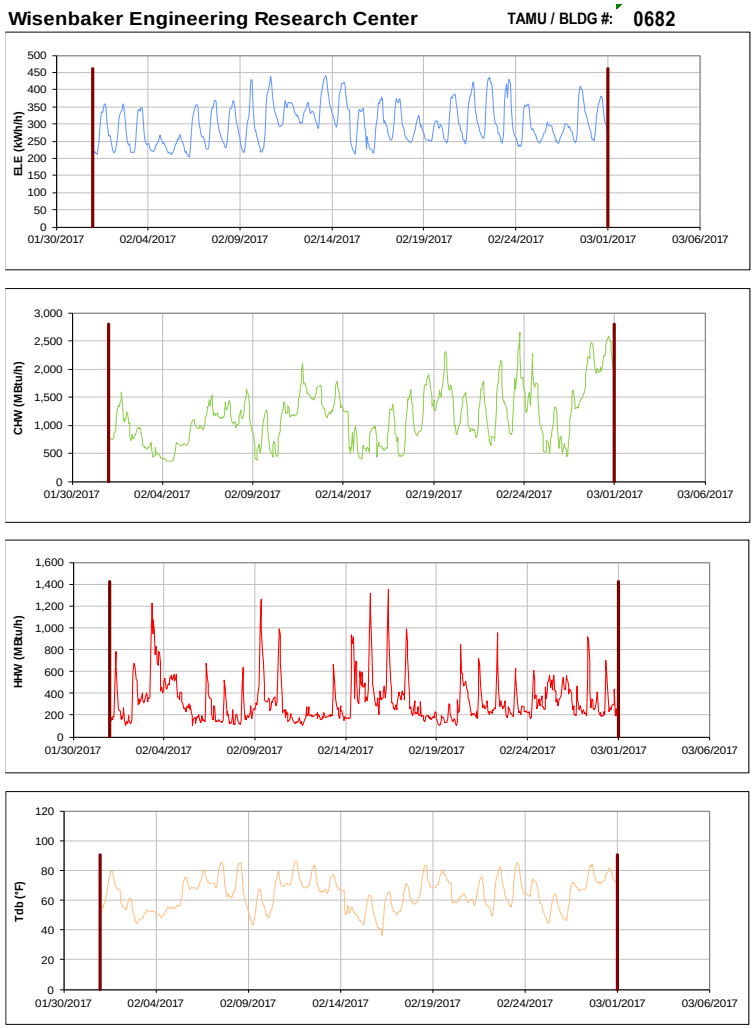



Figure III-114 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Wisenbaker Engineering Research Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

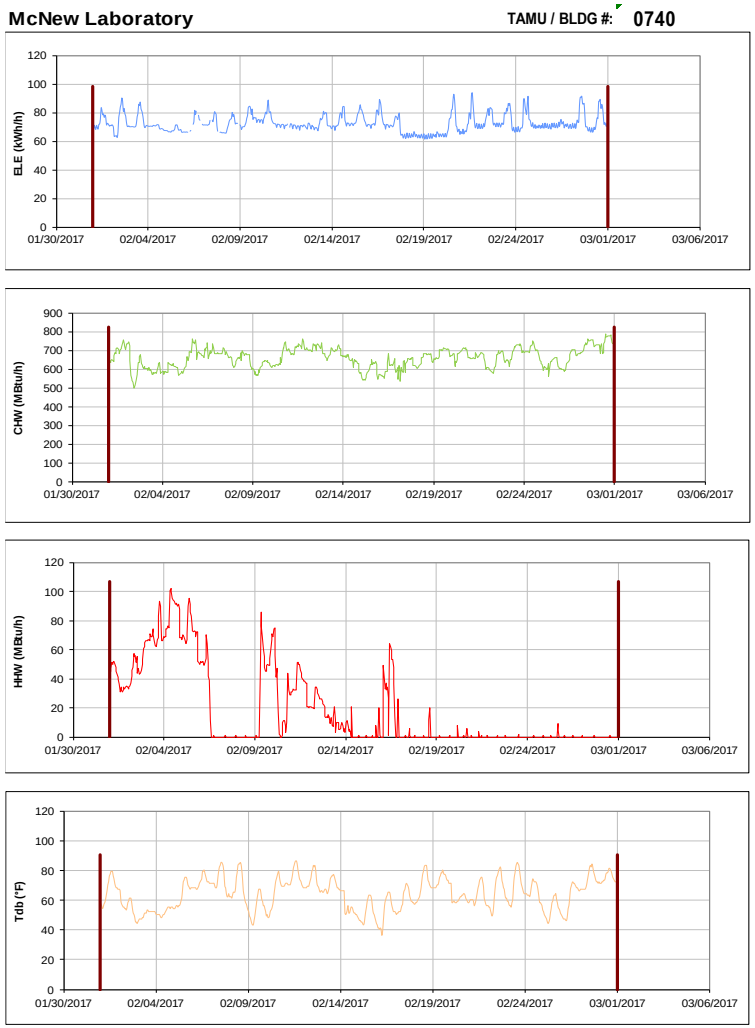



Figure III-115 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for McNew Laboratory during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

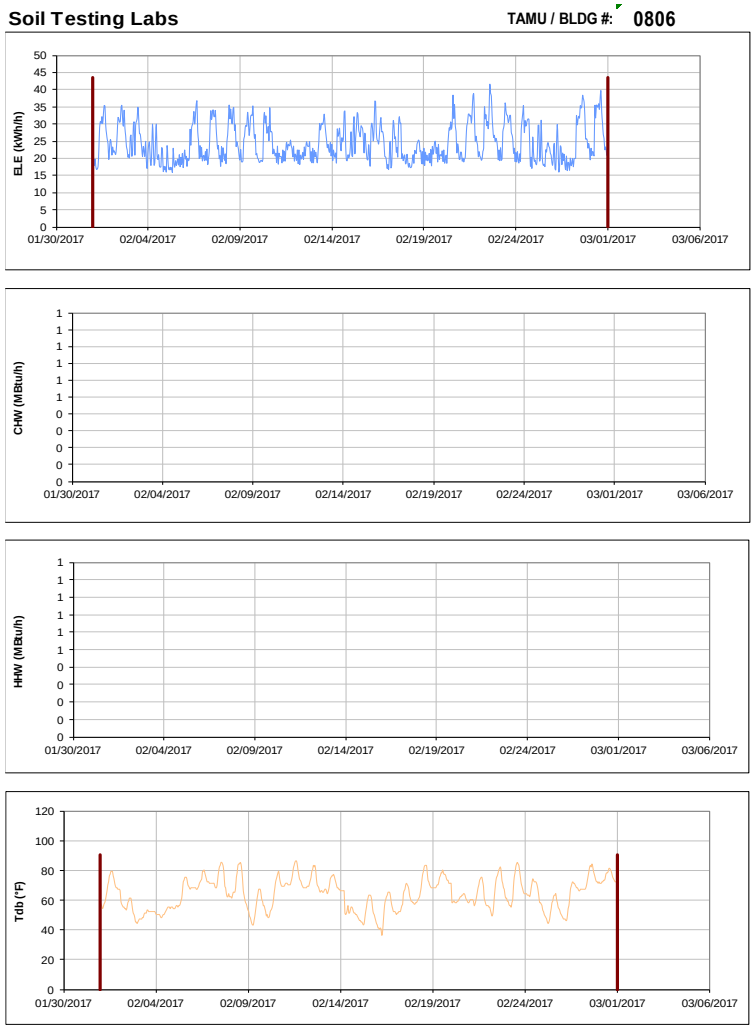



Figure III-116 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Soil Testing Labs during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

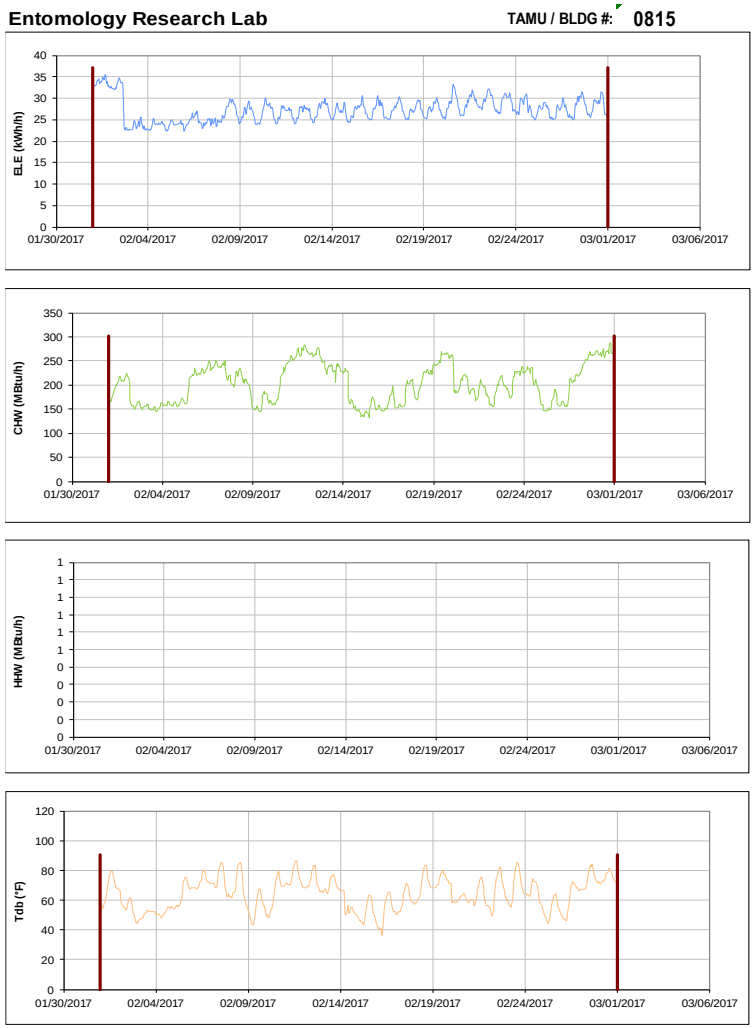



Figure III-117 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Entomology Research Lab during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-118 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TVMC-Small Animal Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

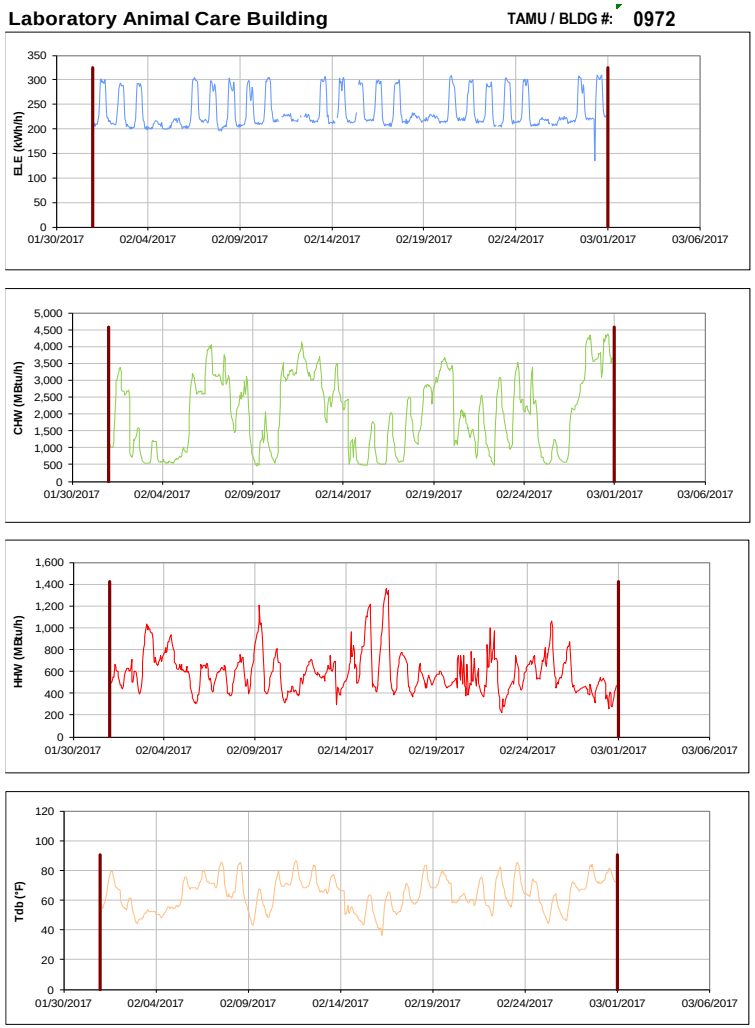



Figure III-119 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Laboratory Animal Care Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

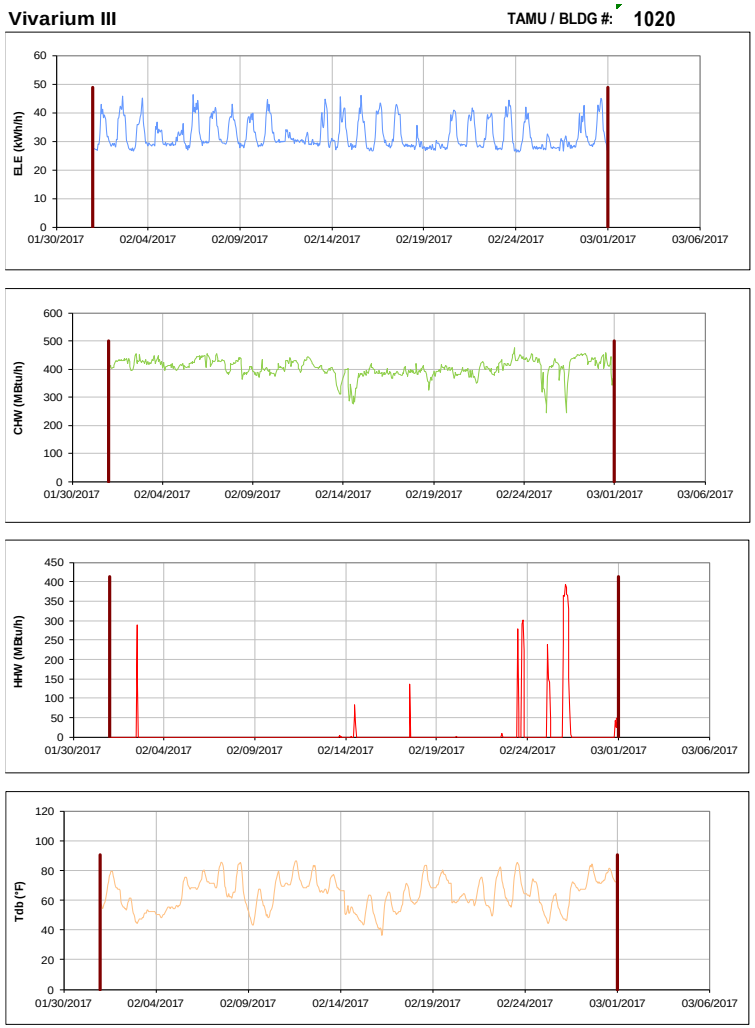



Figure III-120 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Vivarium III during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-121 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Medicine Administration during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

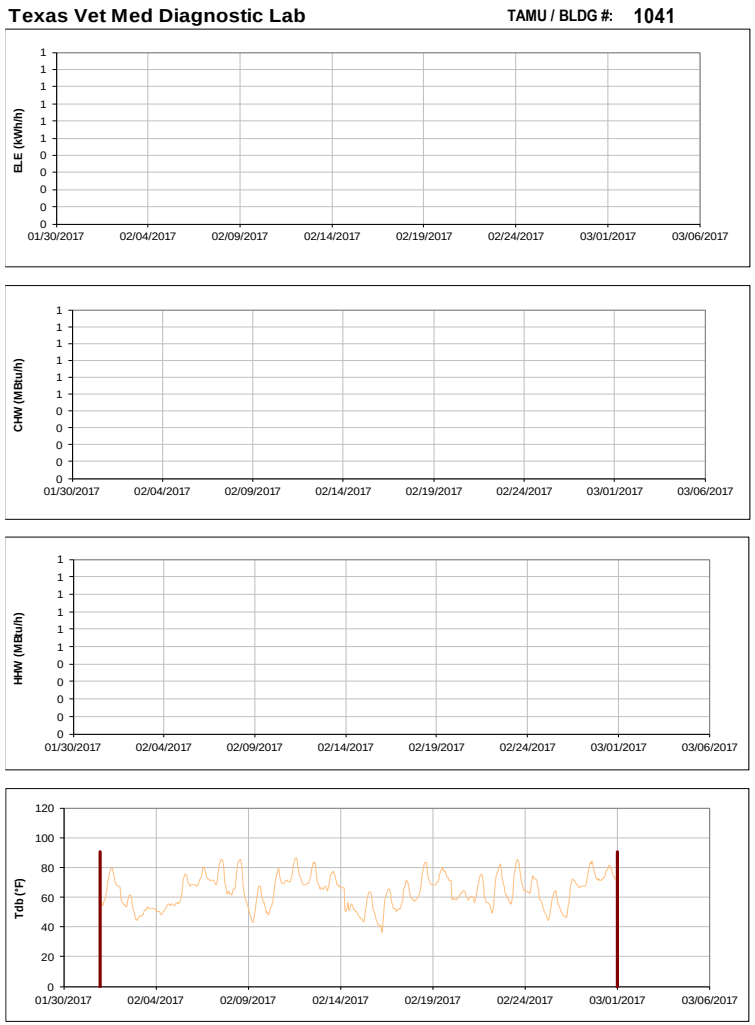



Figure III-122 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Texas Vet Med Diagnostic Lab during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

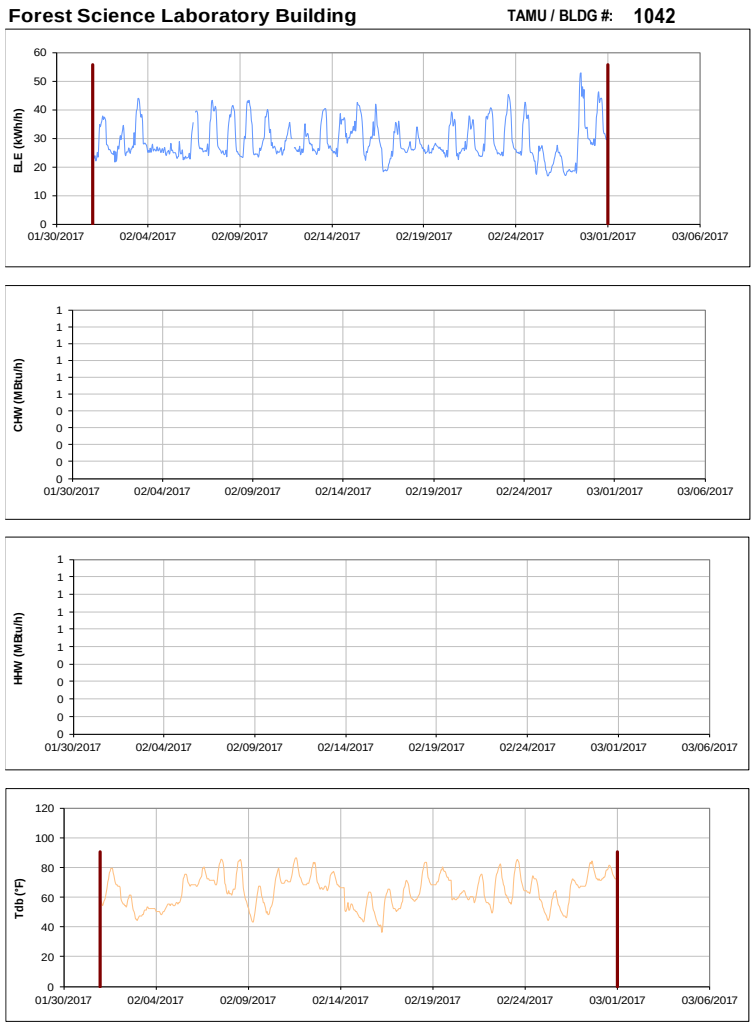



Figure III-123 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Forest Science Laboratory Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

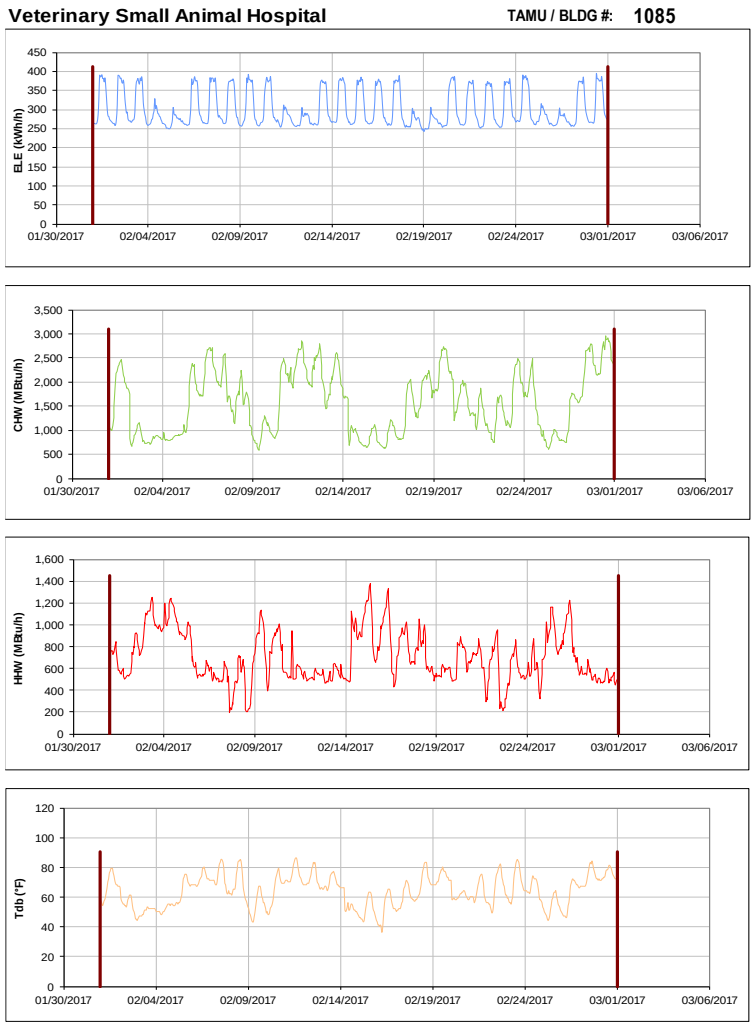



Figure III-124 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Small Animal Hospital during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

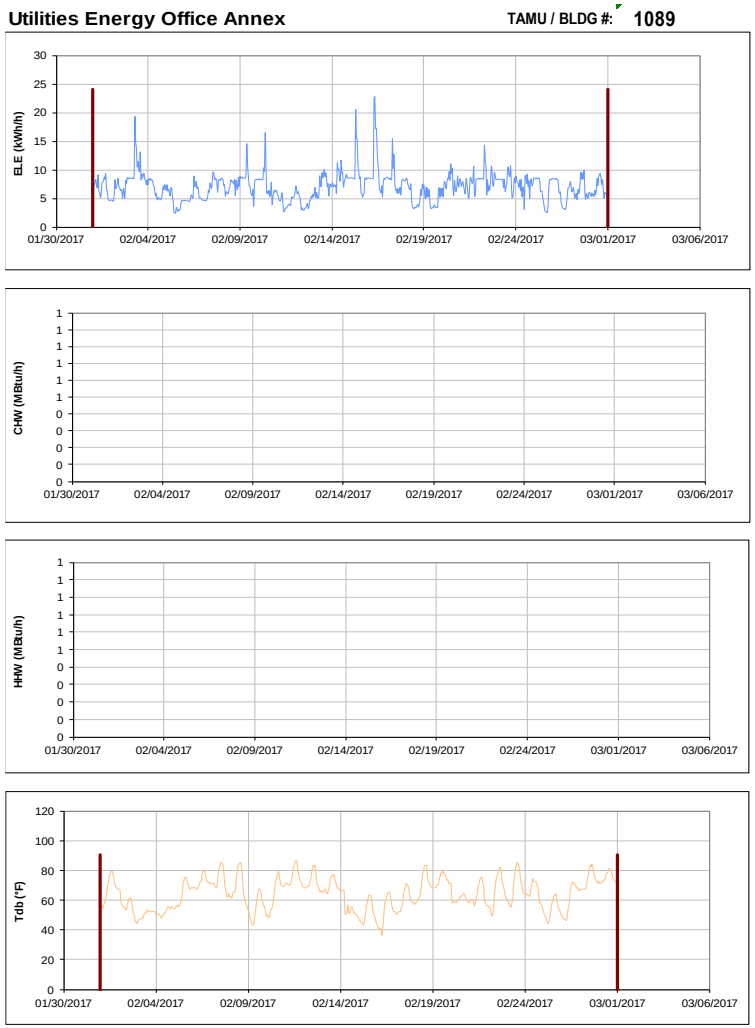



Figure III-125 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utilities Energy Office Annex during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

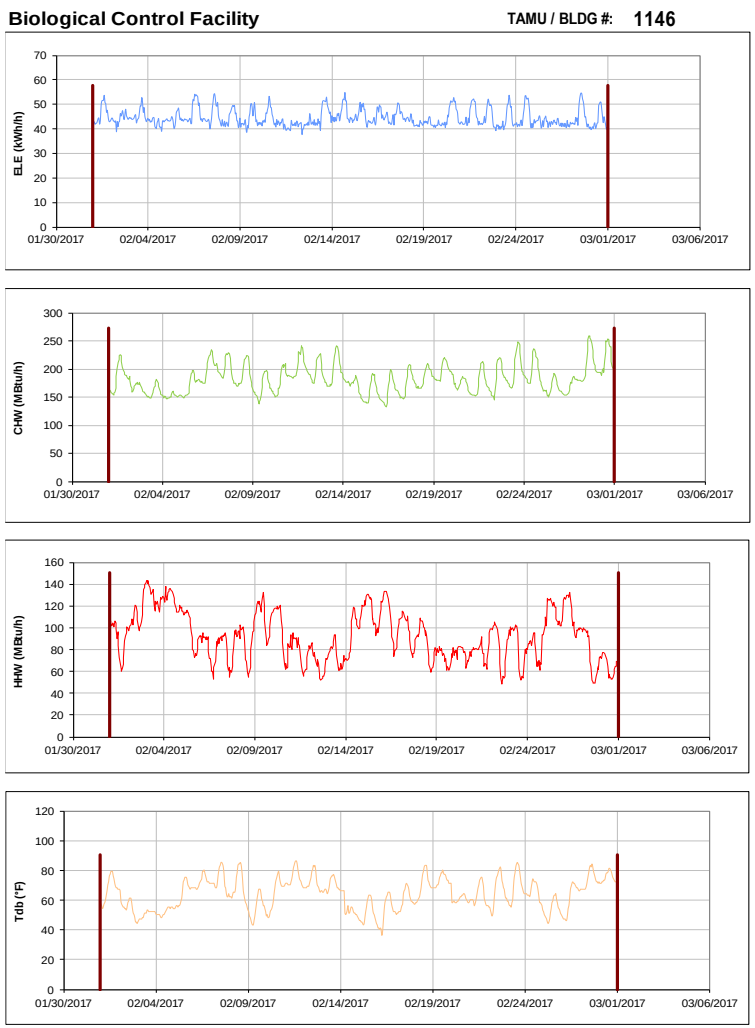



Figure III-126 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biological Control Facility during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

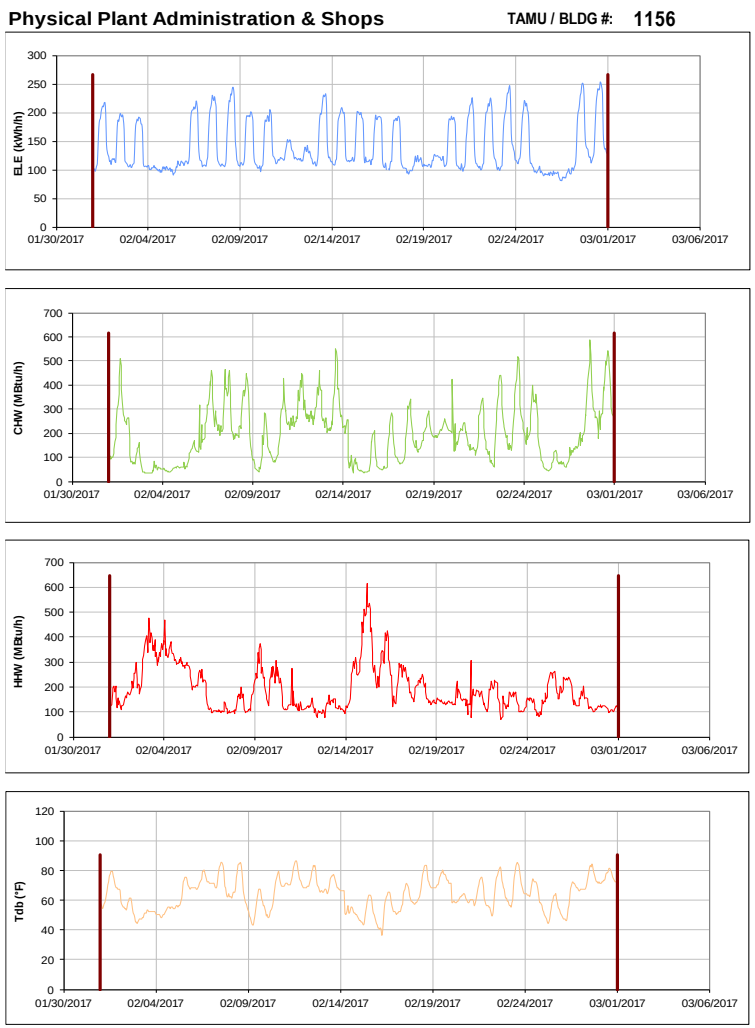



Figure III-127 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Physical Plant Administration & Shops during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

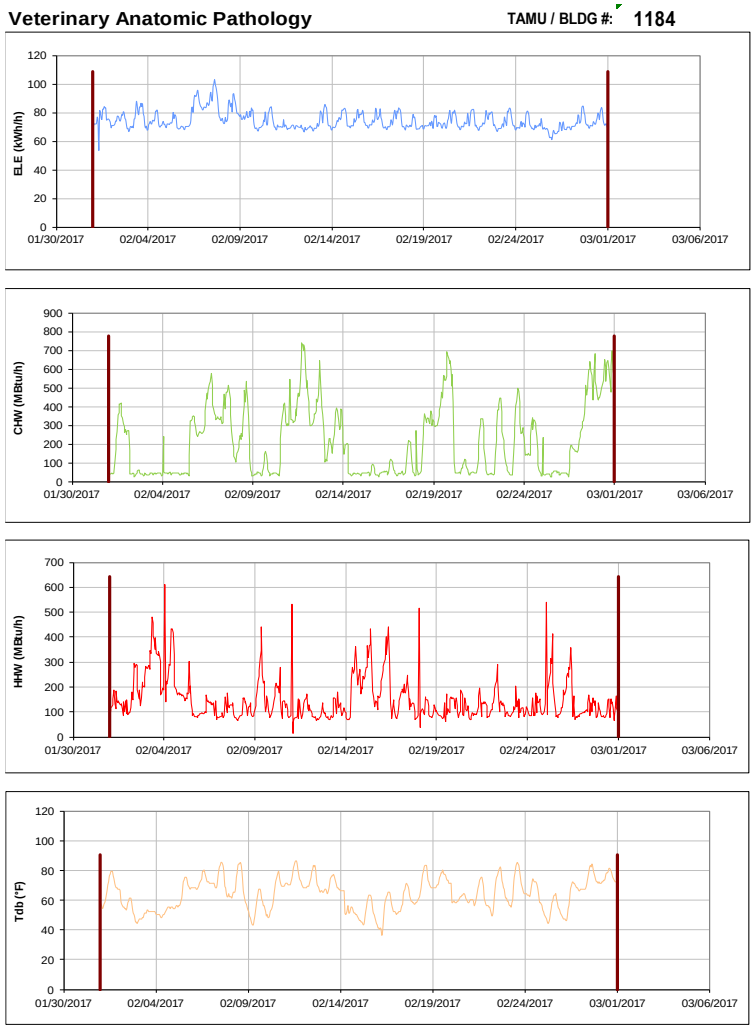



Figure III-128 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Anatomic Pathology during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

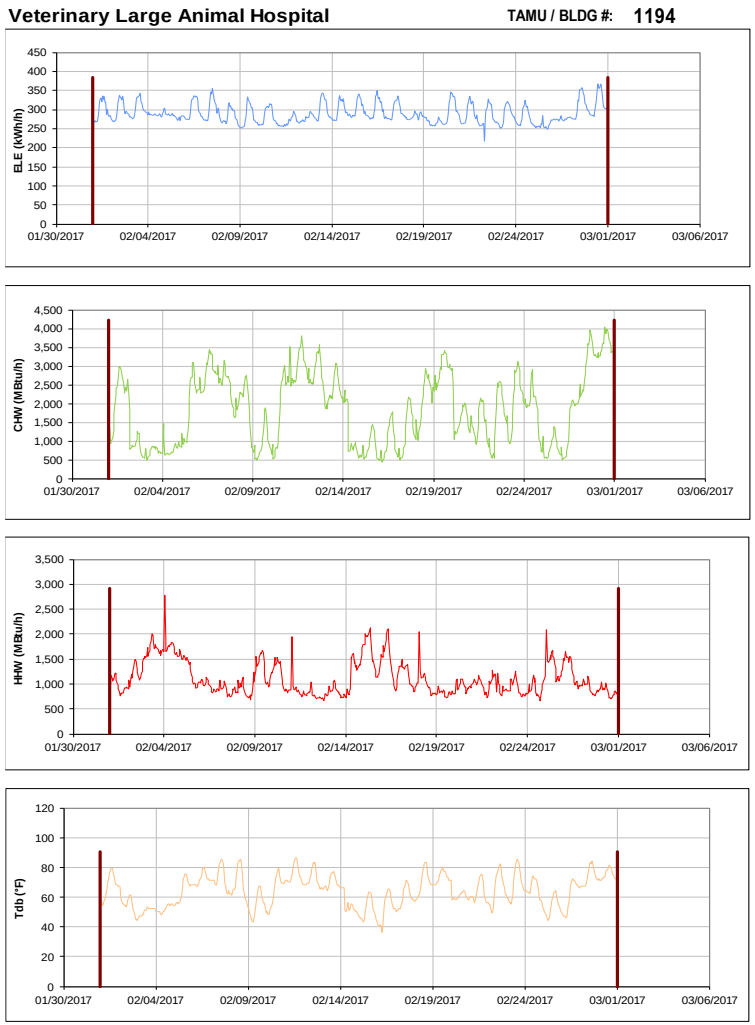



Figure III-129 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Large Animal Hospital during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

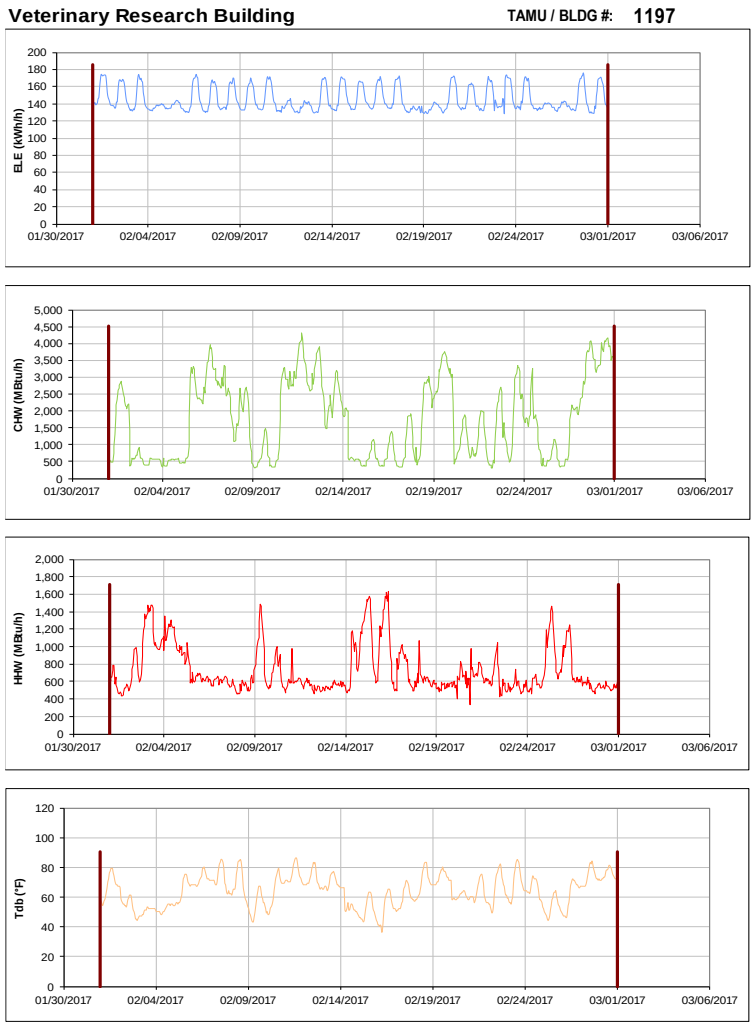



Figure III-130 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Research Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

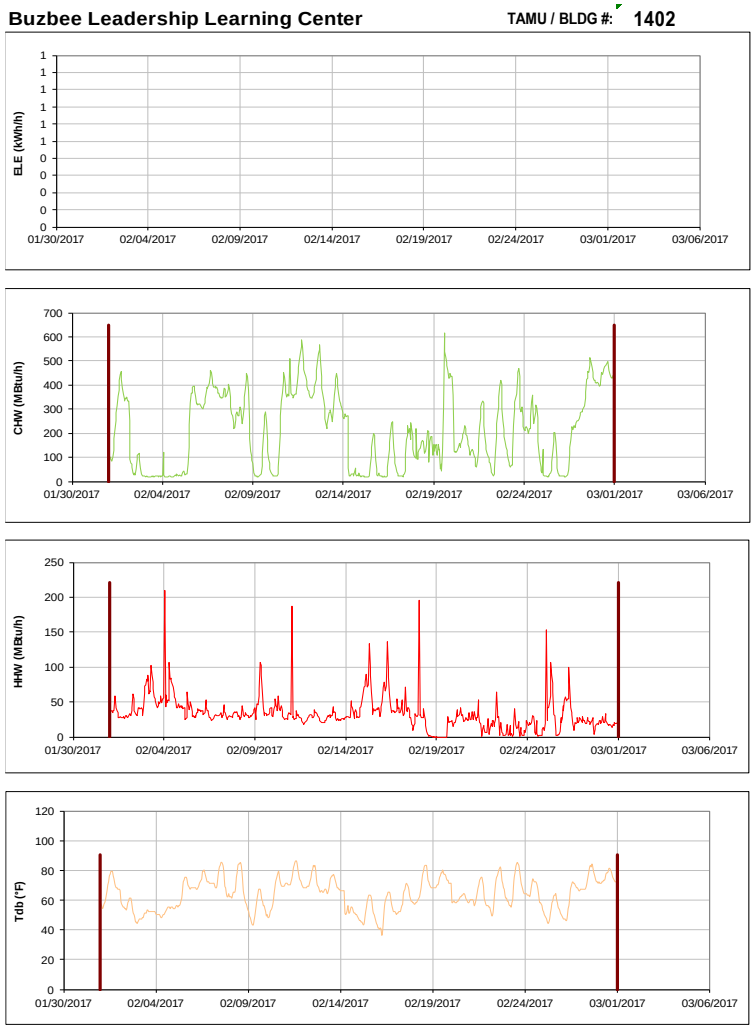



Figure III-131 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Buzbee Leadership Learning Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

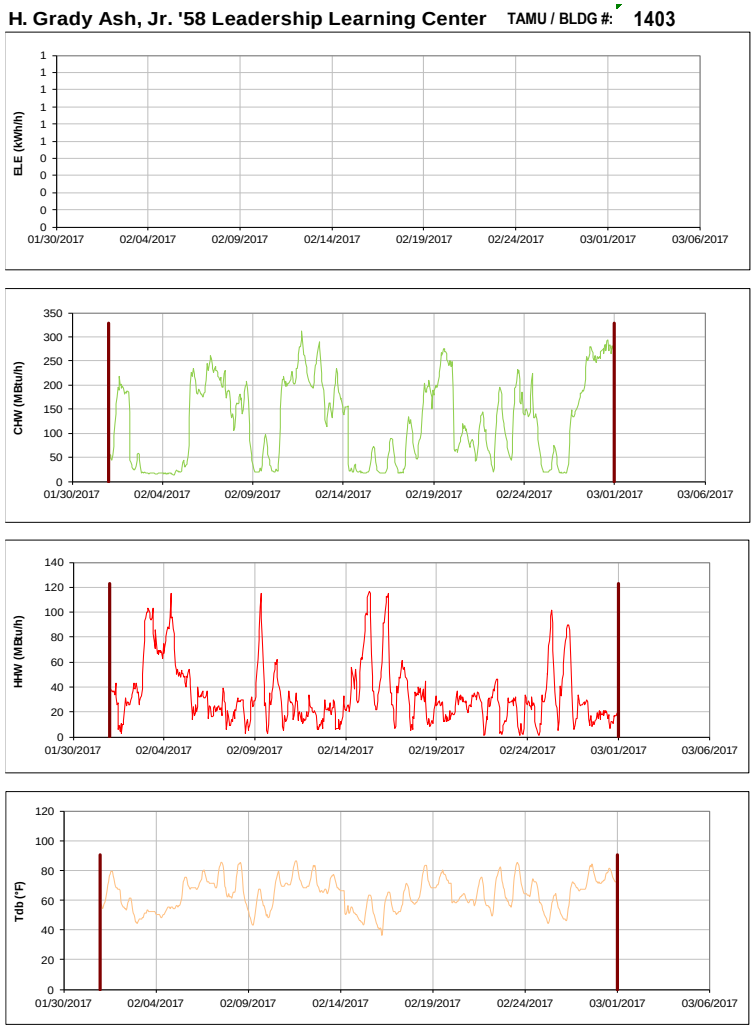



Figure III-132 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for H. Grady Ash, Jr. '58 Leadership Learning Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

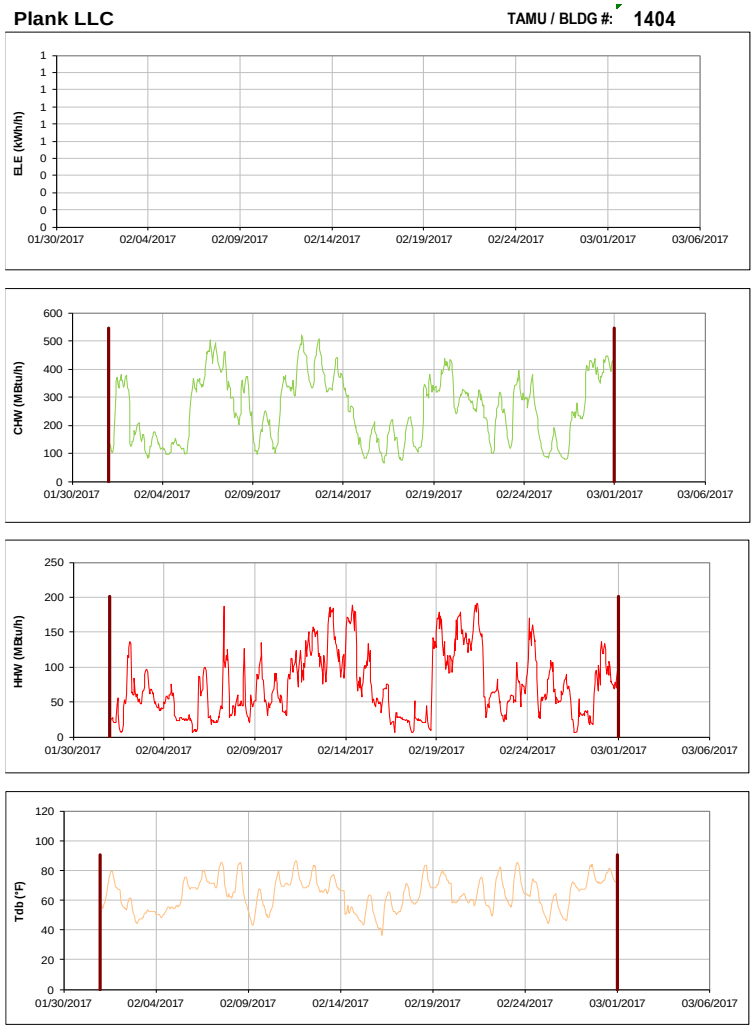



Figure III-133 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Plank LLC during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

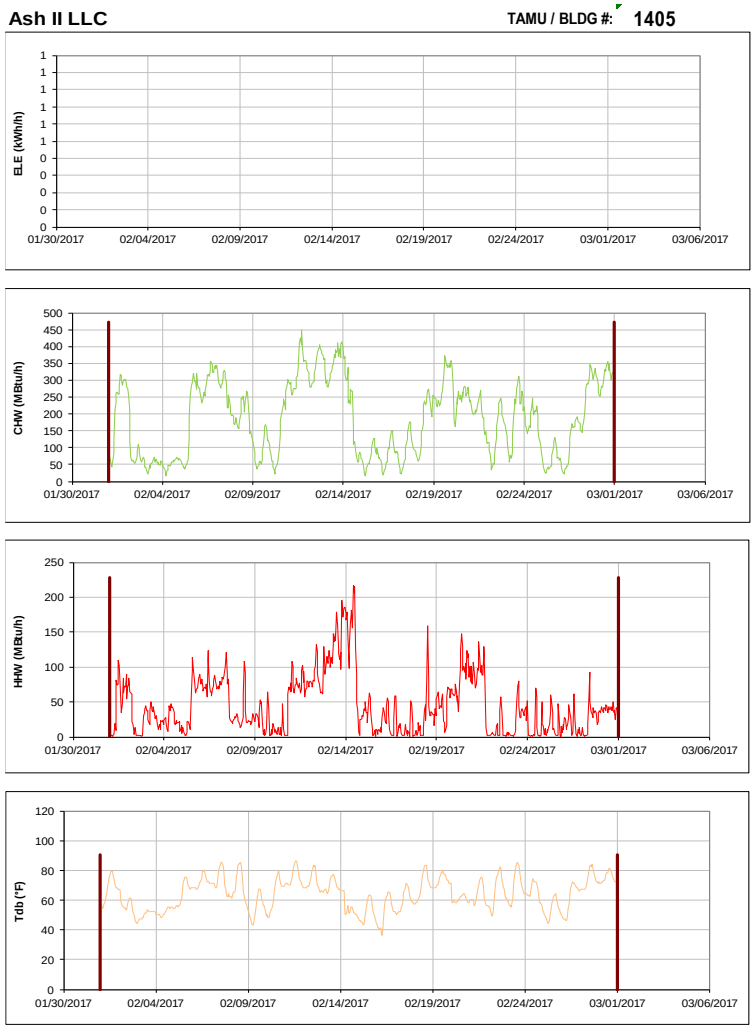



Figure III-134 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Ash II LLC during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

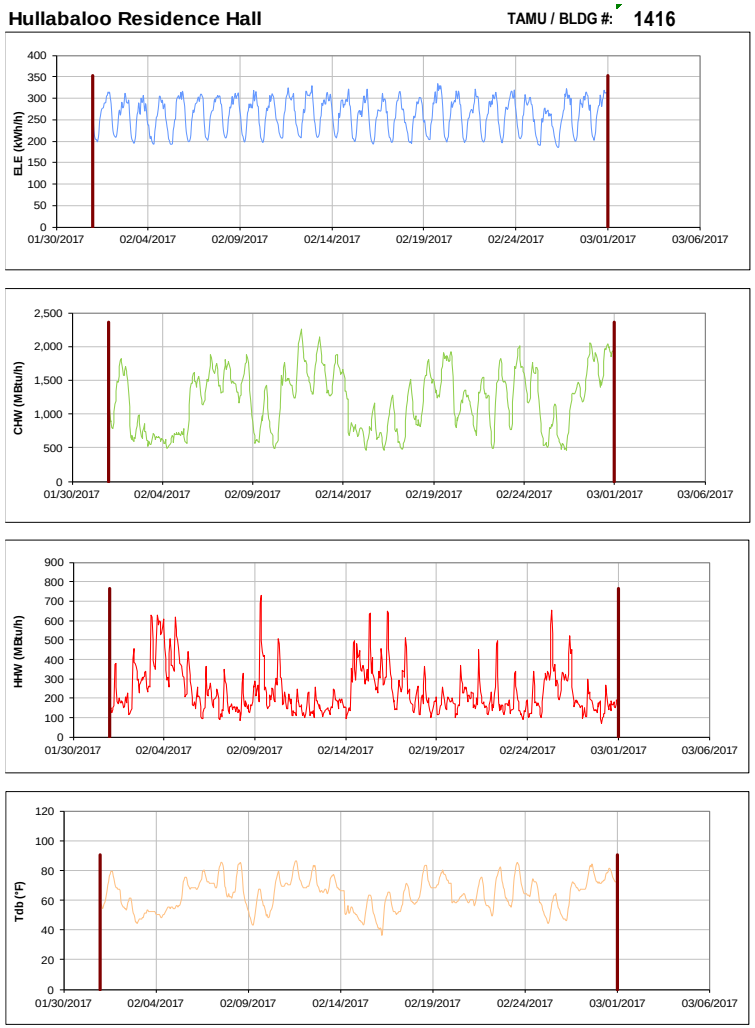



Figure III-135 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Hullabaloo Residence Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

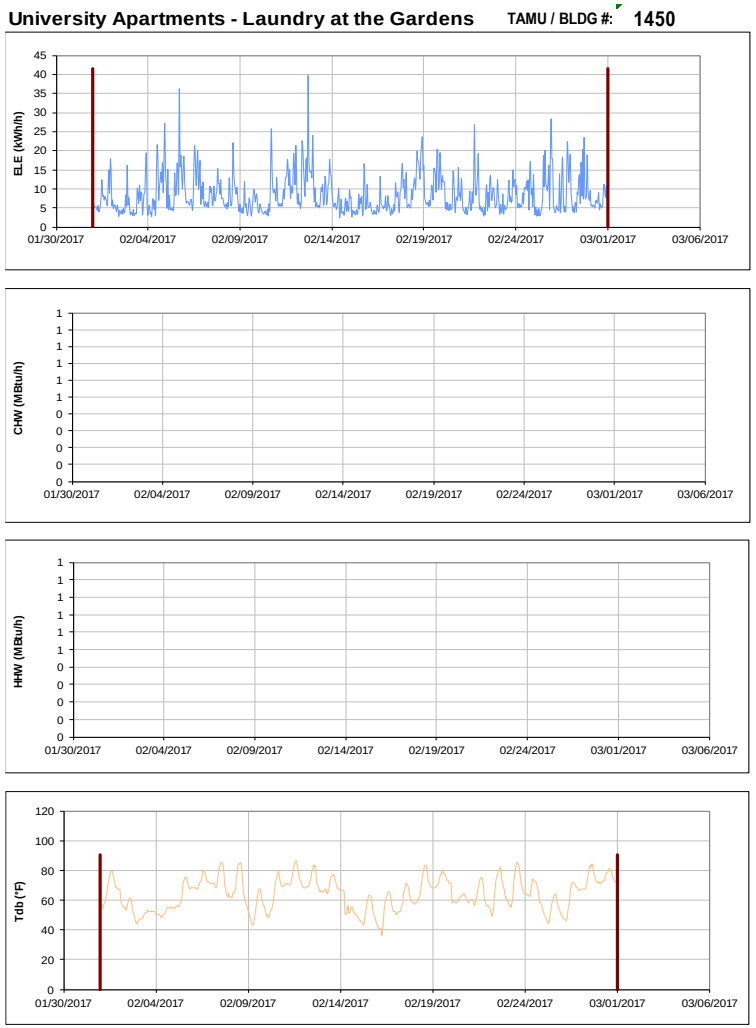



Figure III-136 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - Laundry at the Gardens during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

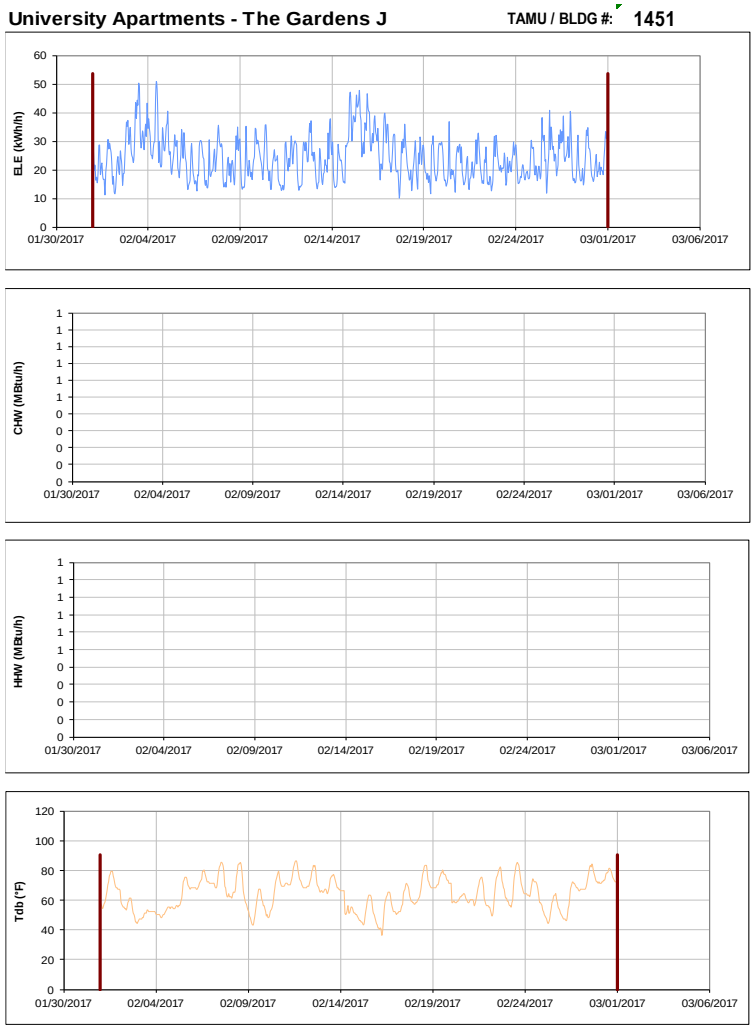



Figure III-137 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens J during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

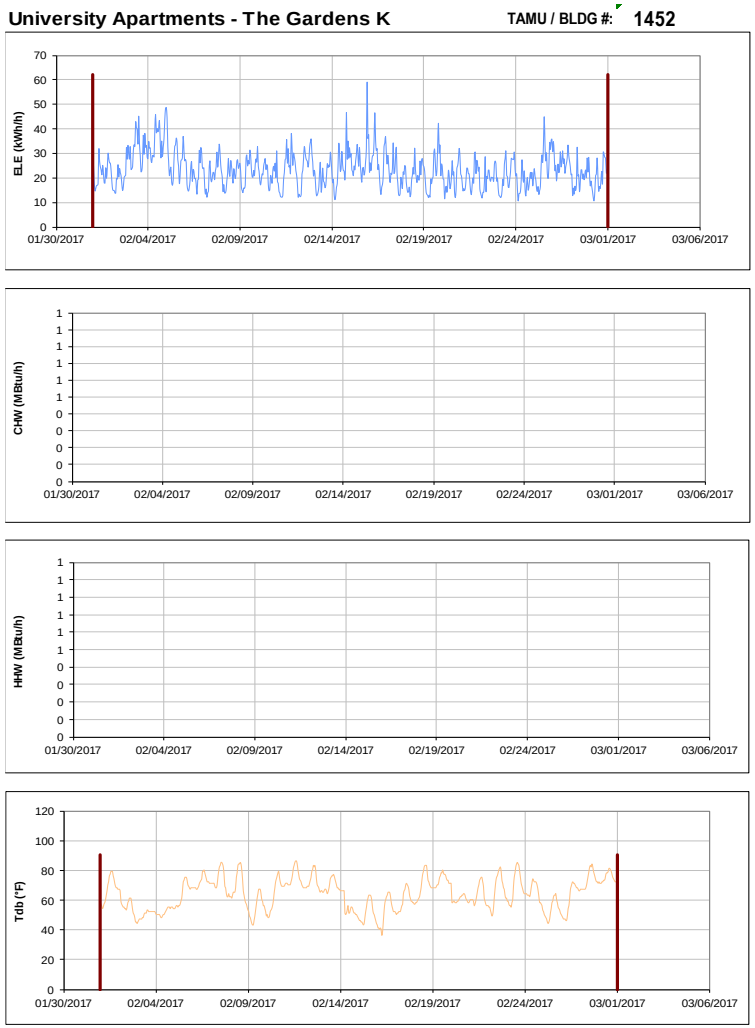



Figure III-138 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens K during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

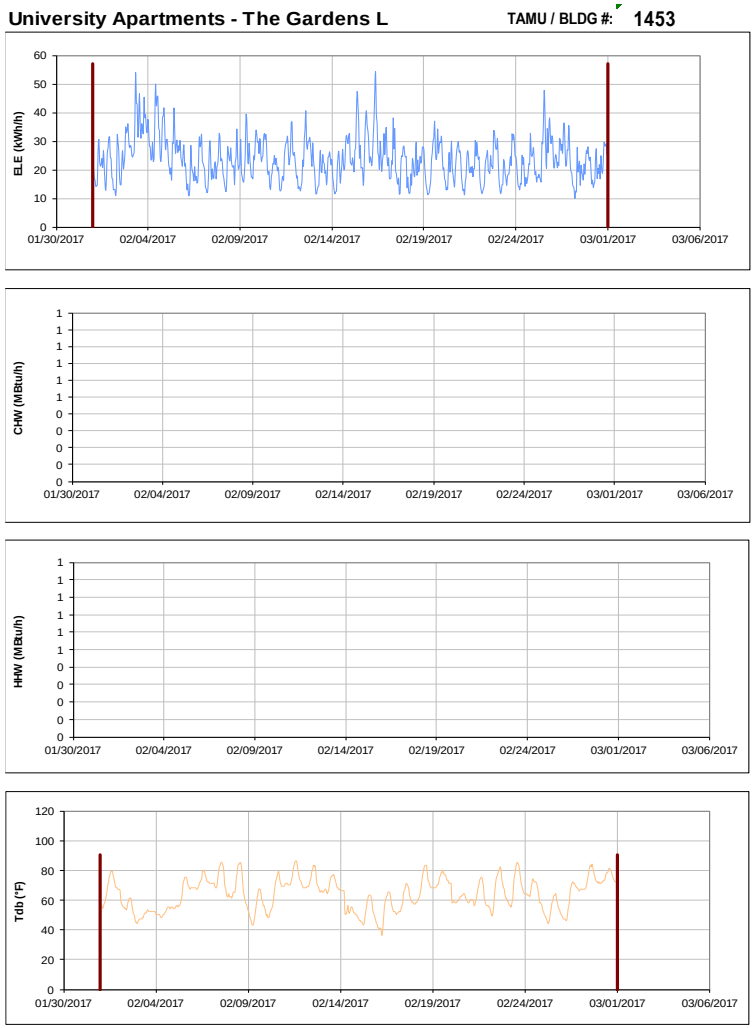



Figure III-139 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens L during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

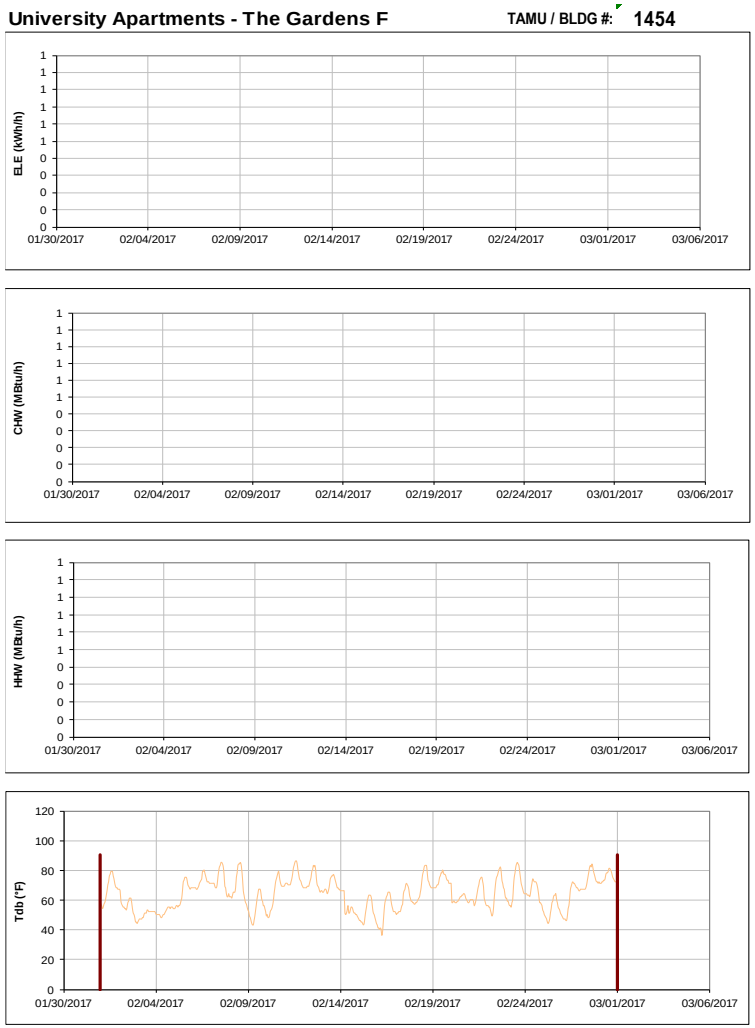



Figure III-140 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens F during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

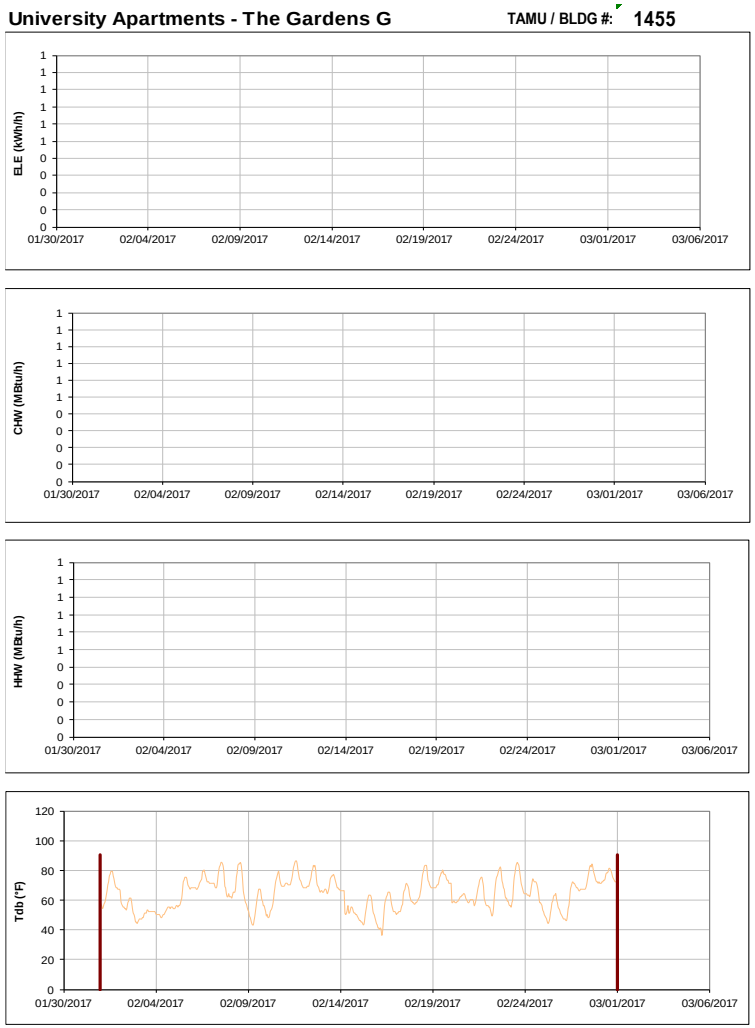



Figure III-141 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens G during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

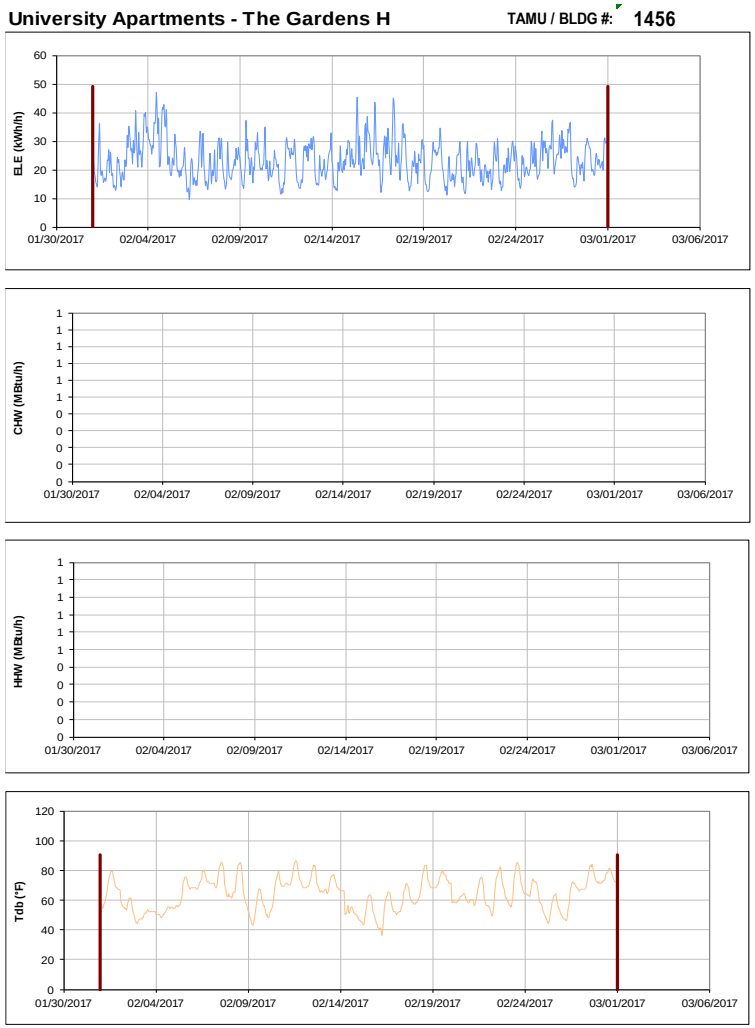



Figure III-142 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens H during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

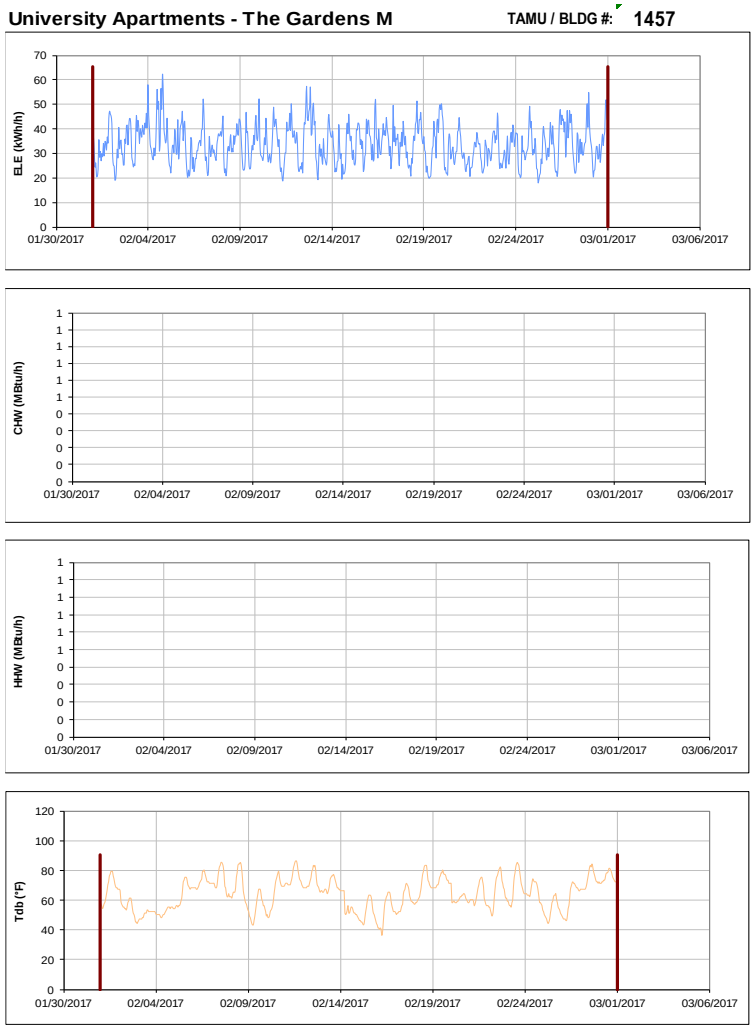



Figure III-143 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens M during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

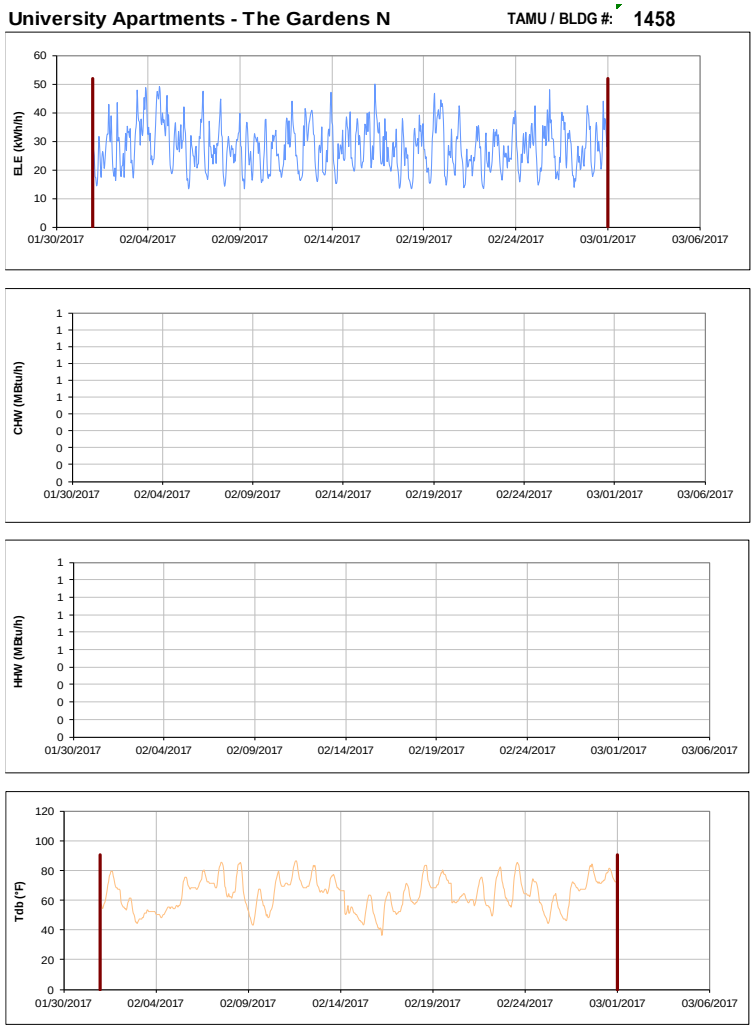



Figure III-144 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens N during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

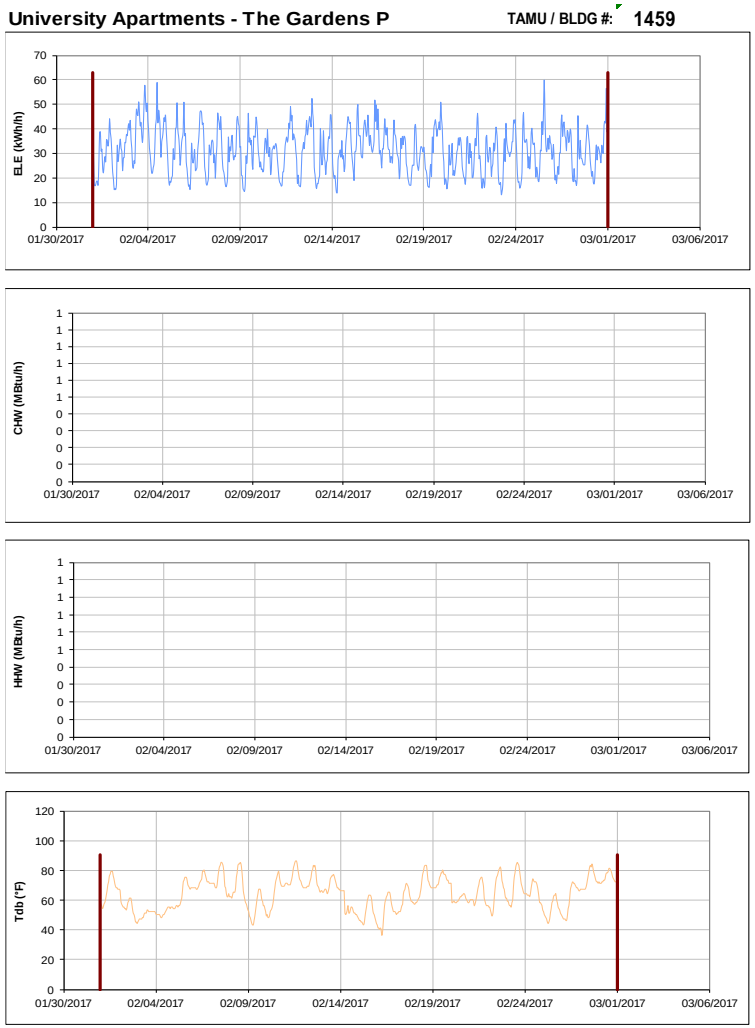



Figure III-145 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens P during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

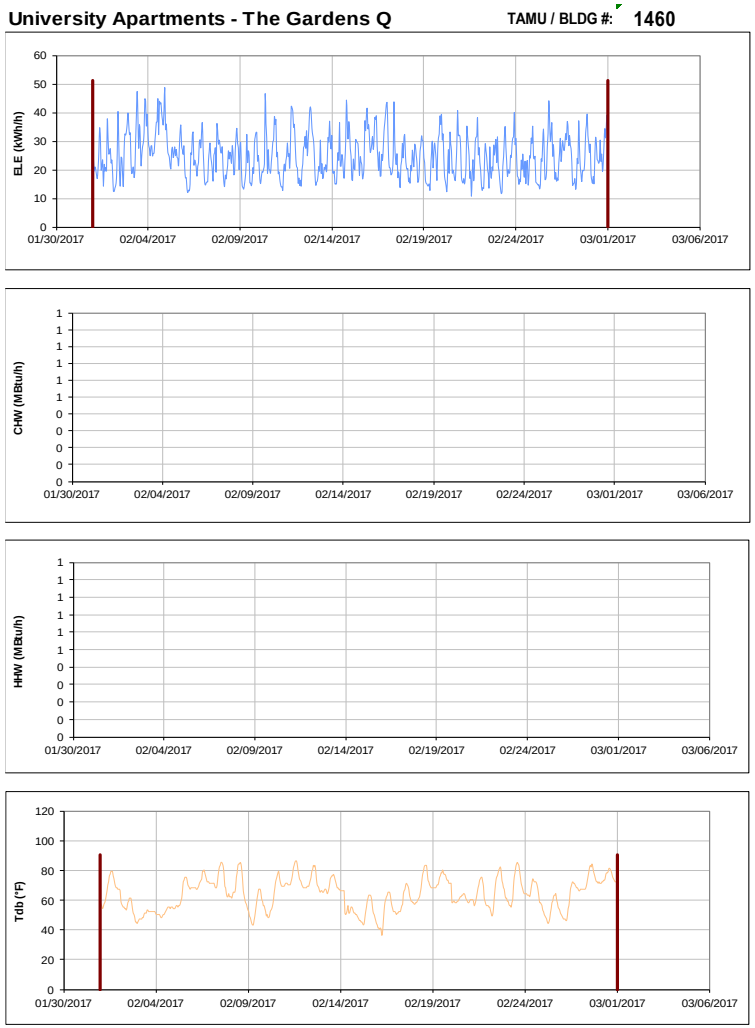



Figure III-146 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens Q during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-147 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utilities & Energy Services Business Office during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

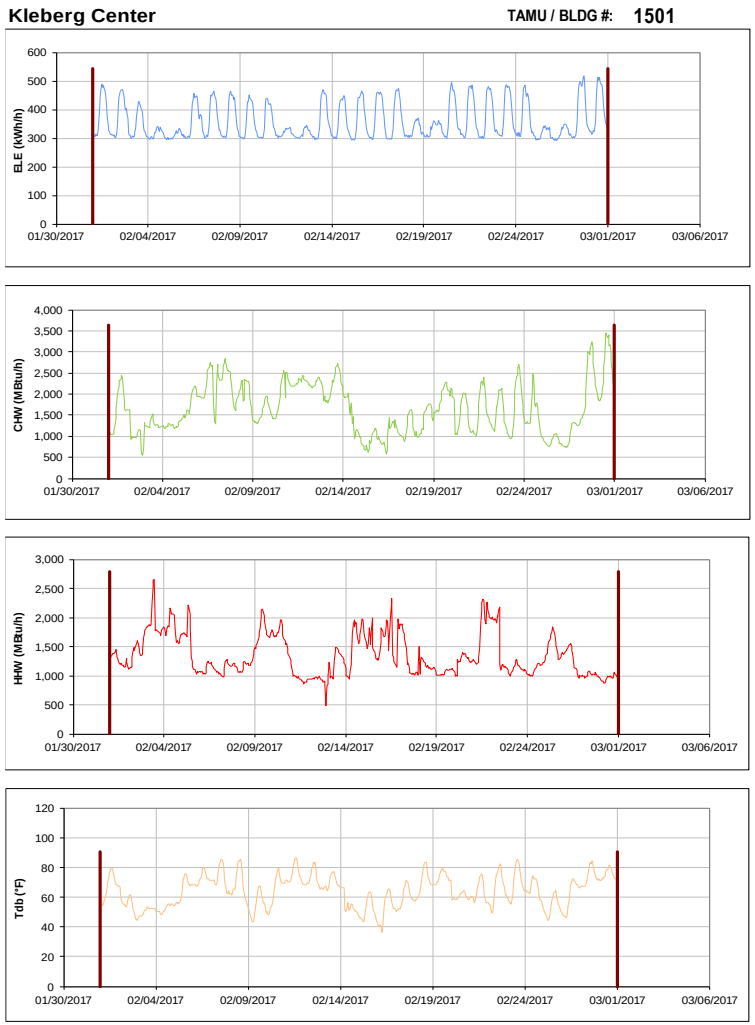



Figure III-148 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kleberg Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

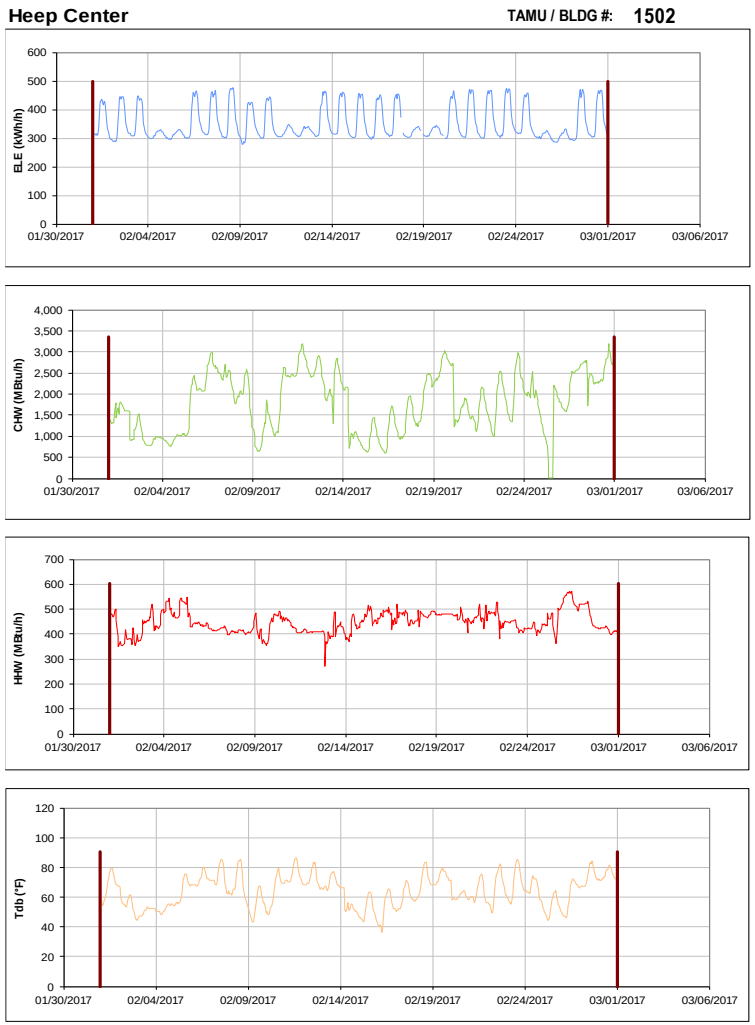



Figure III-149 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heep Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

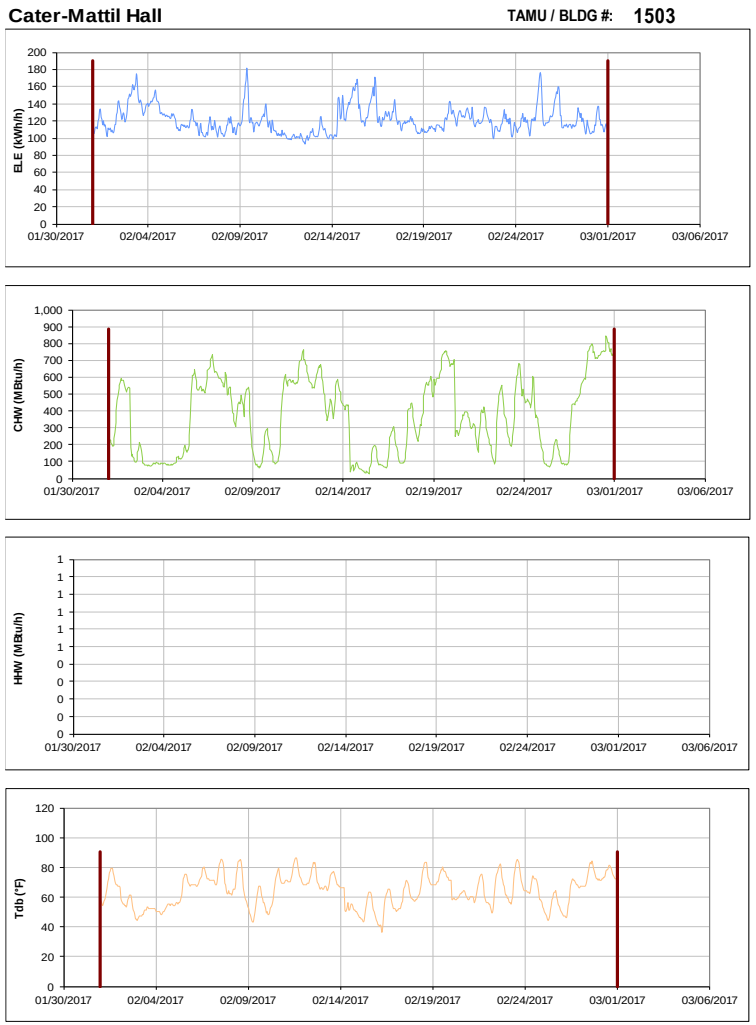



Figure III-150 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Cater-Mattil Hall during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

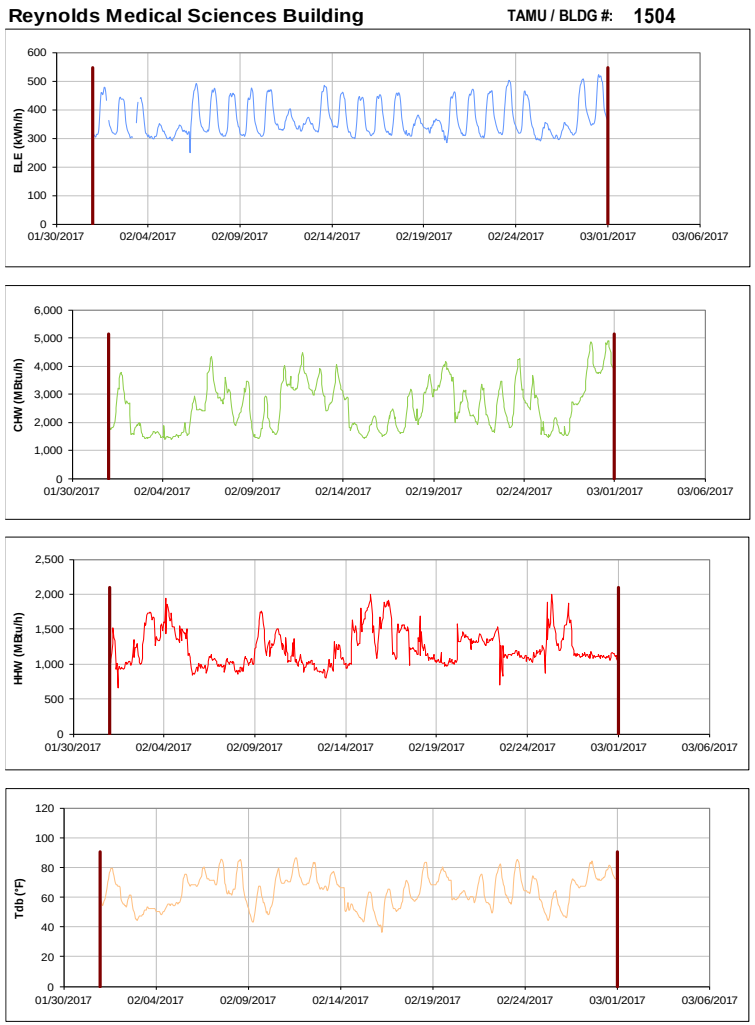



Figure III-151 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reynolds Medical Sciences Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

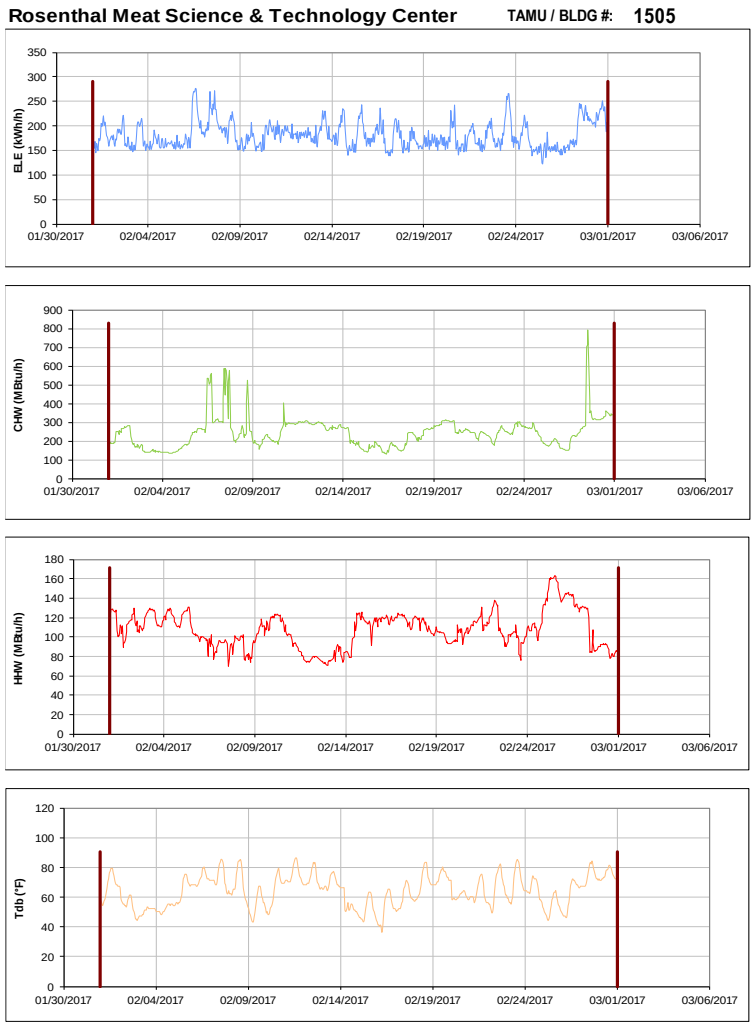



Figure III-152 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rosenthal Meat Science & Technology Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

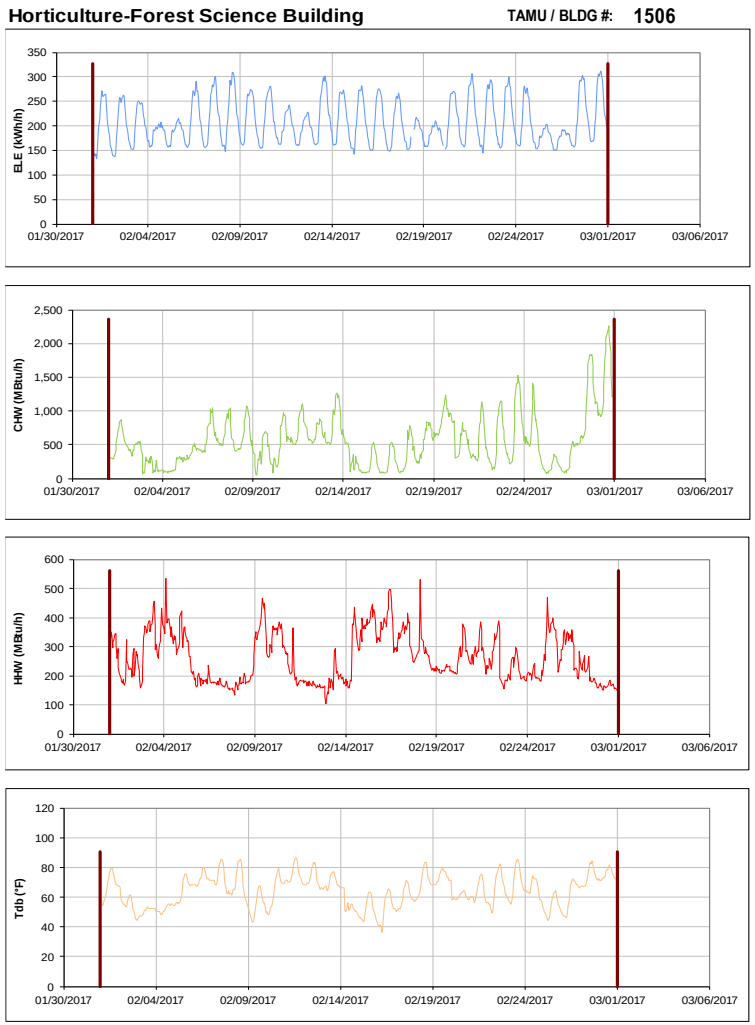



Figure III-153 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Horticulture-Forest Science Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

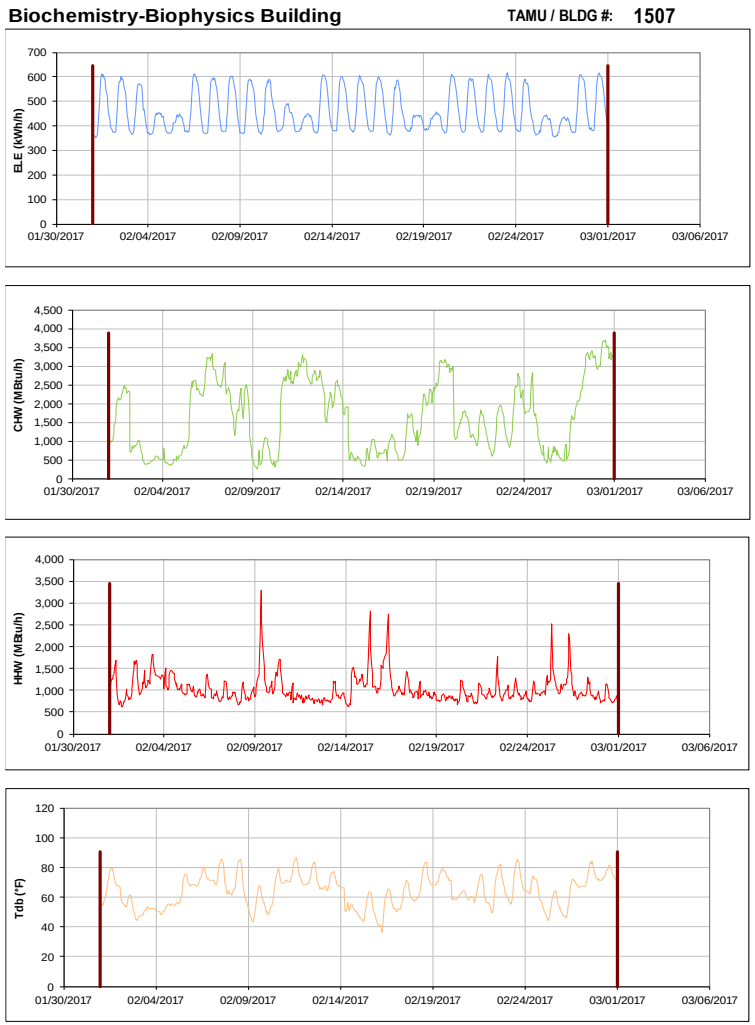



Figure III-154 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biochemistry-Biophysics Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

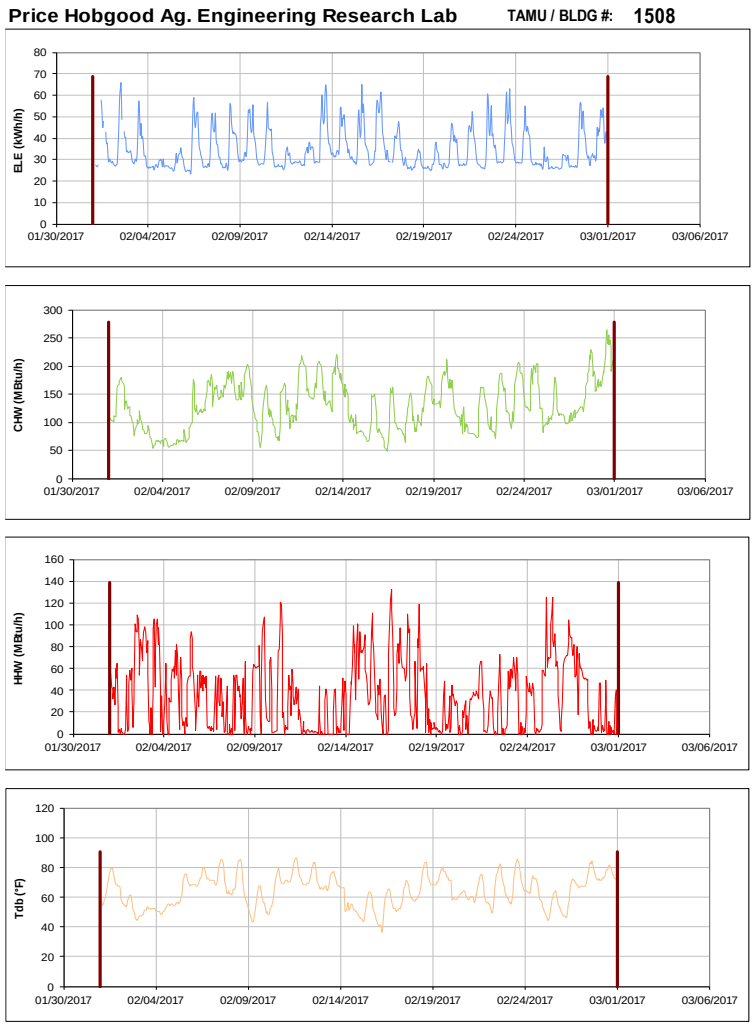



Figure III-155 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Price Hobgood Ag. Engineering Research Lab during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

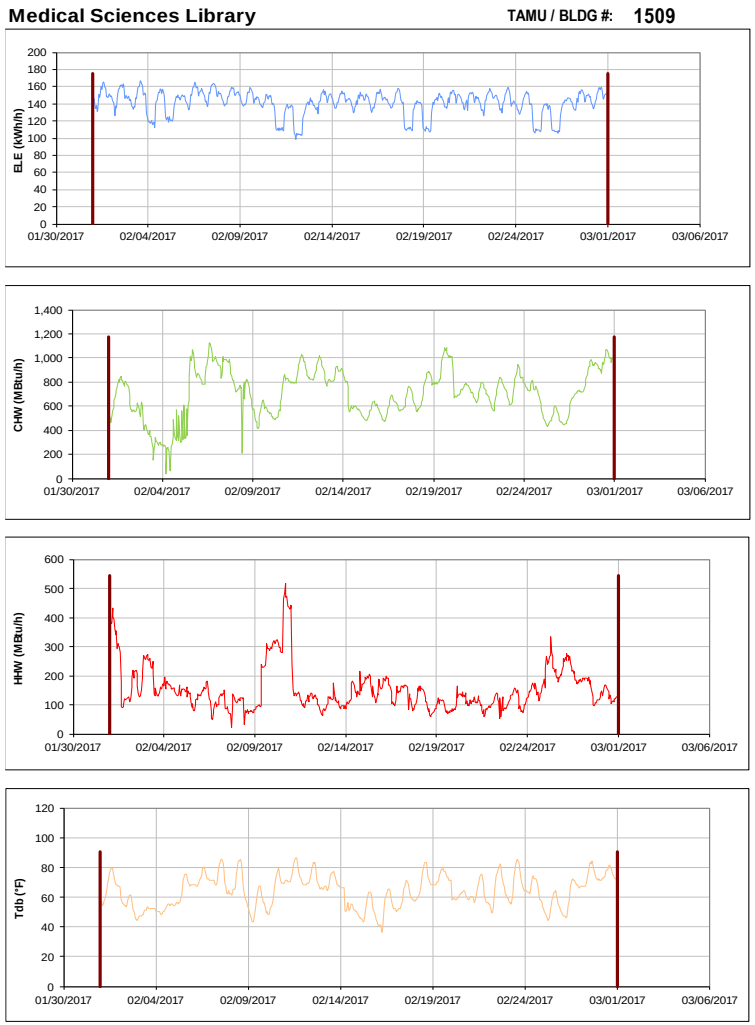



Figure III-156 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Medical Sciences Library during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

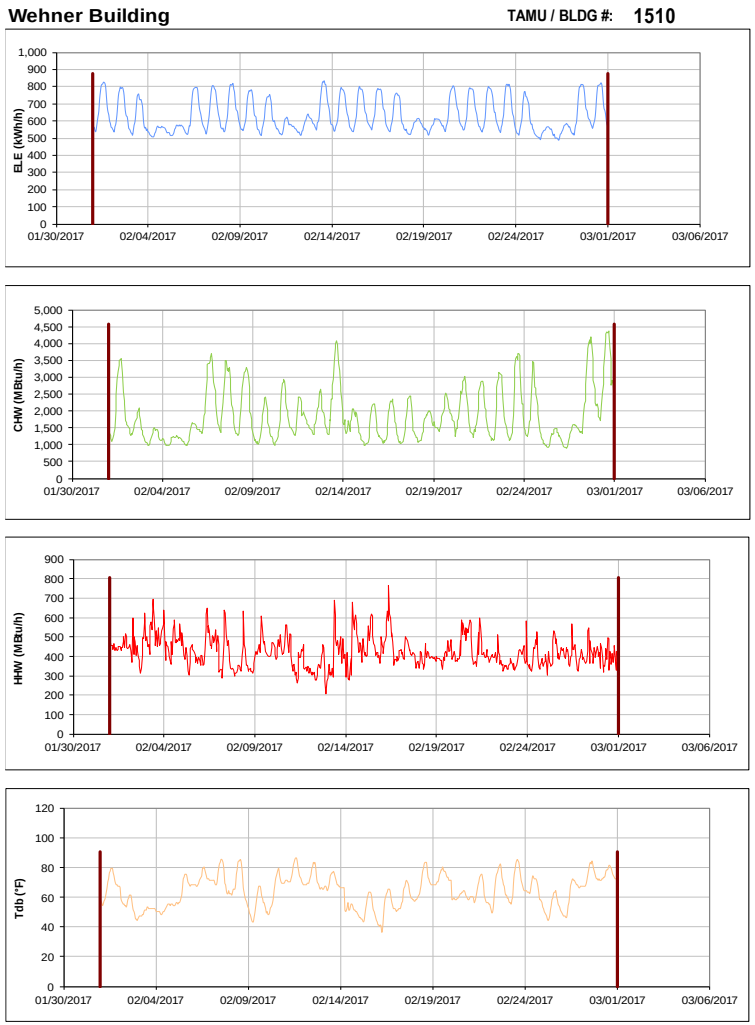



Figure III-157 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Wehner Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-158 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for West Campus Library Facility during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

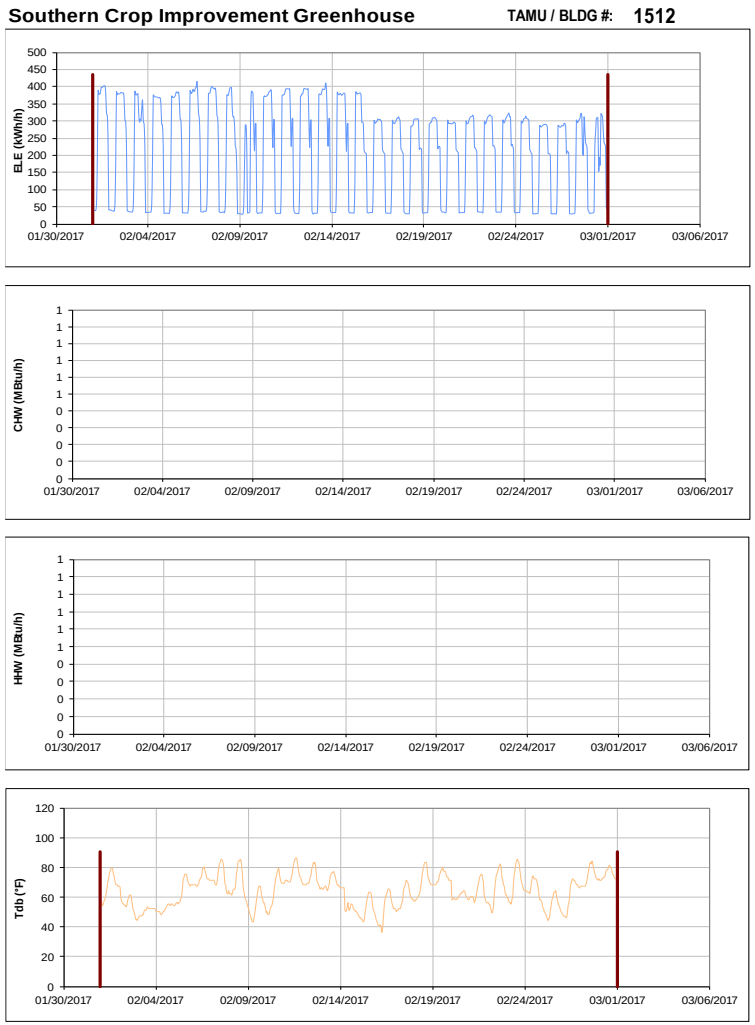



Figure III-159 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Southern Crop Improvement Greenhouse during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

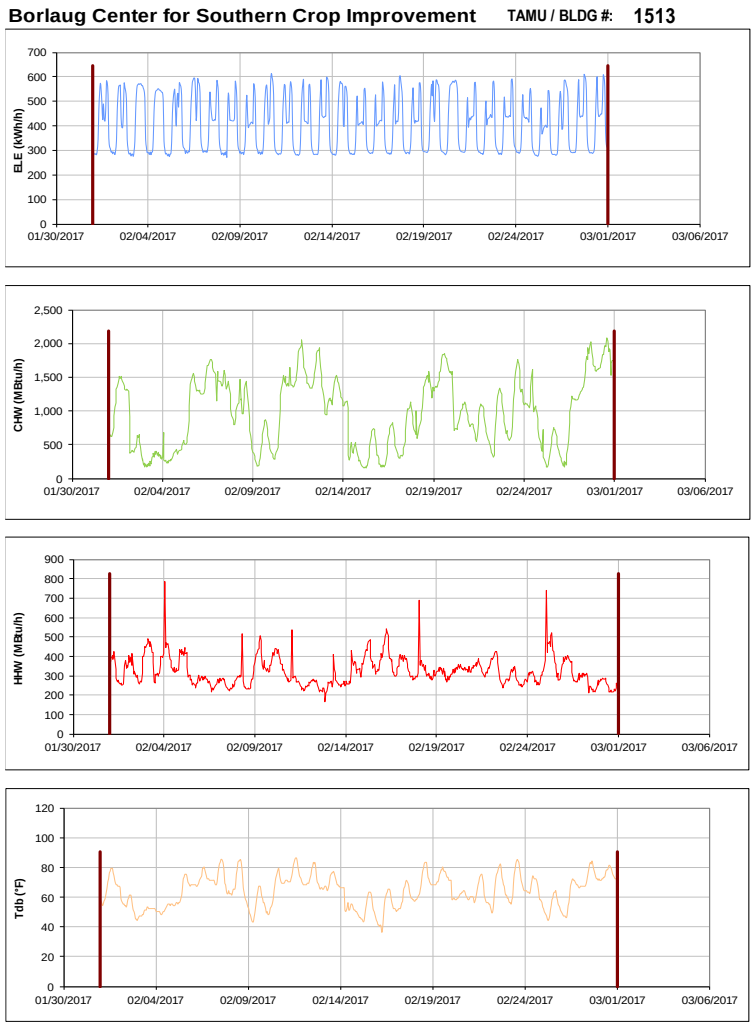



Figure III-160 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Borlaug Center for Southern Crop Improvement during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

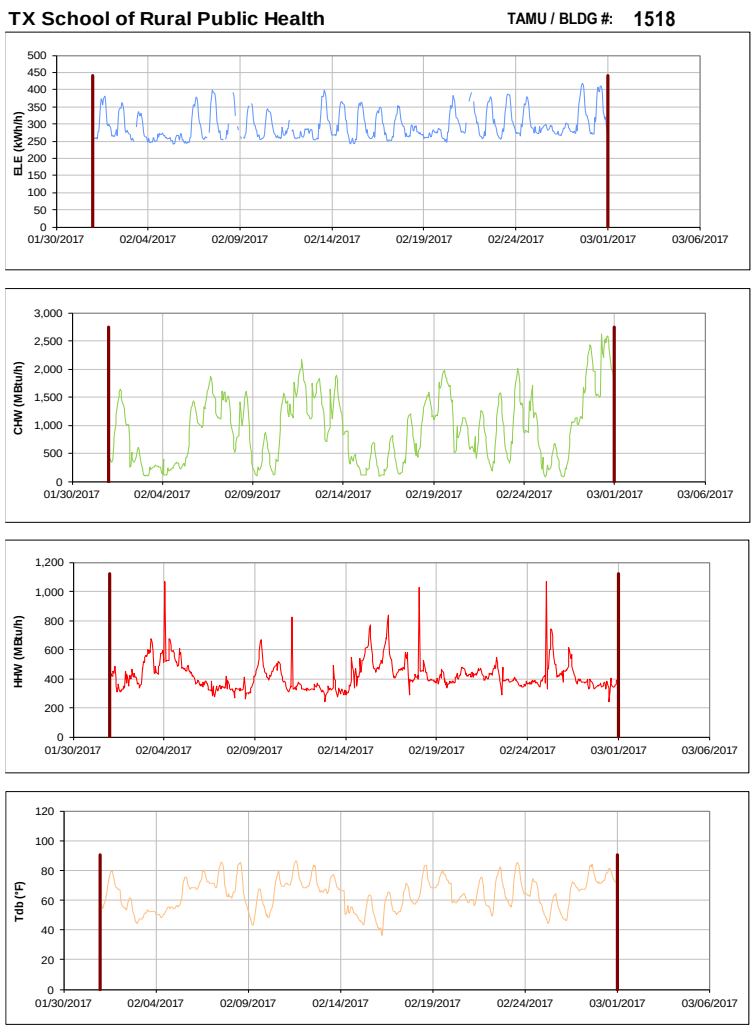



Figure III-161 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TX School of Rural Public Health during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-162 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Nuclear Magnetic Resonance Facility during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

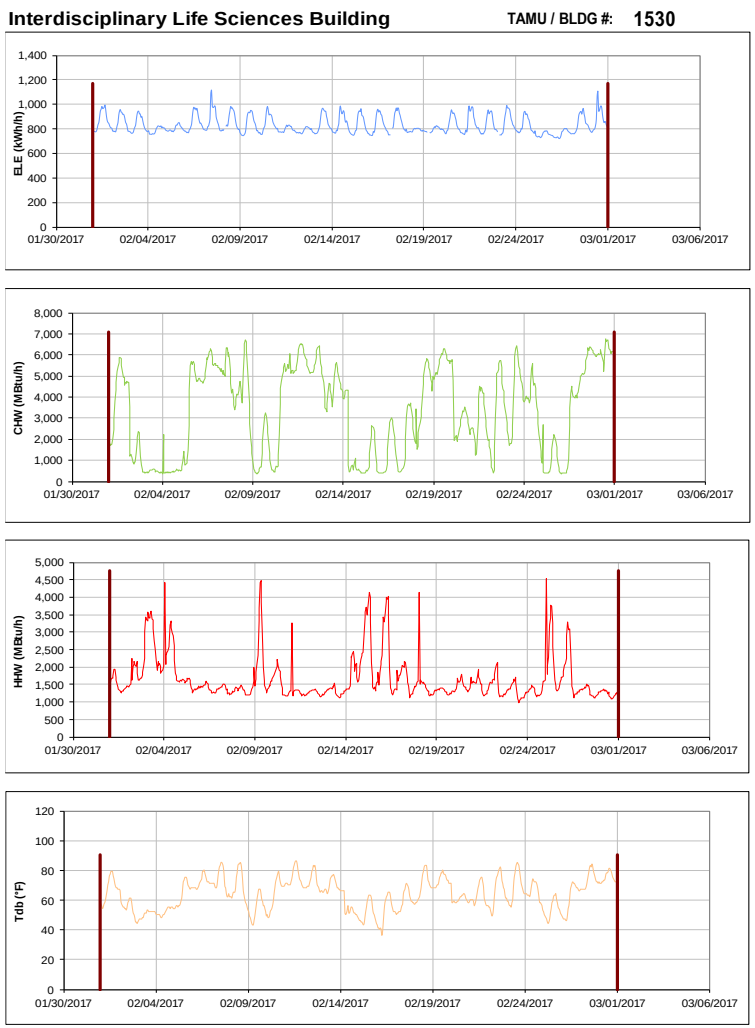



Figure III-163 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Interdisciplinary Life Sciences Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-164 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Agriculture and Life Sciences Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

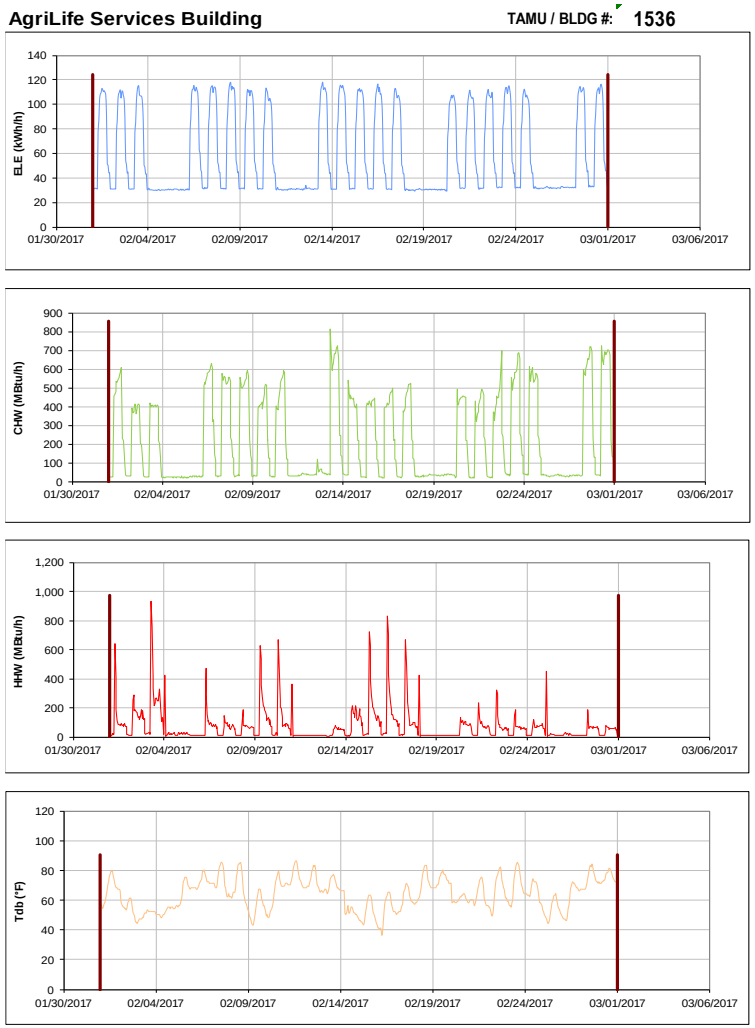



Figure III-165 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for AgriLife Services Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

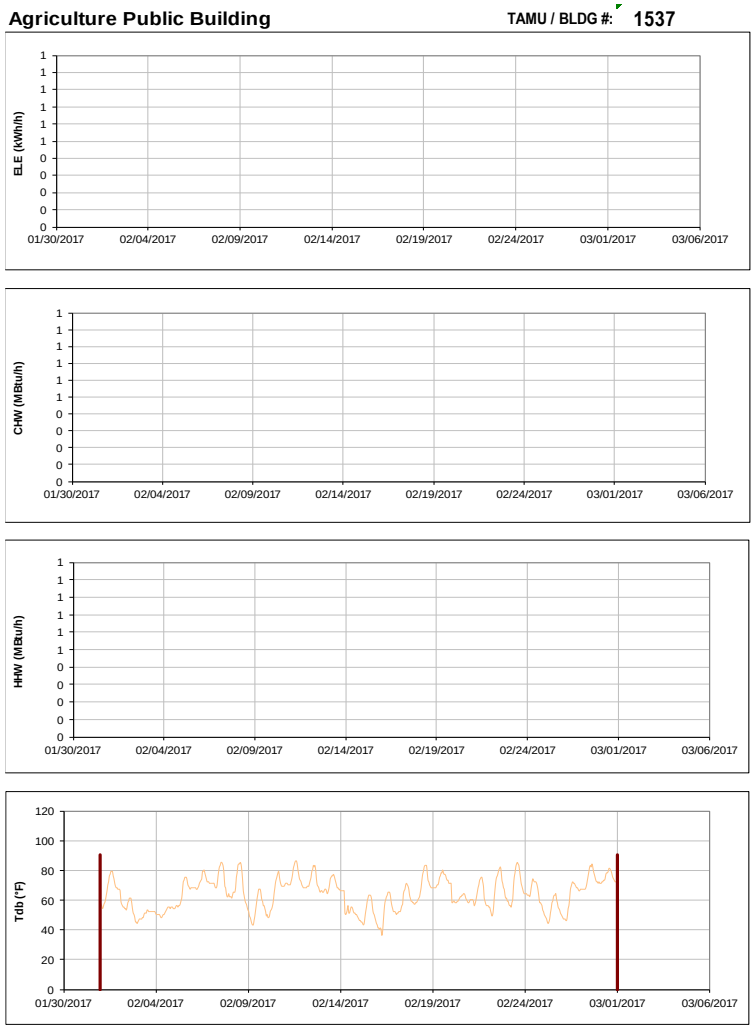



Figure III-166 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Agriculture Public Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-167 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Agriculture Program Visitors Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

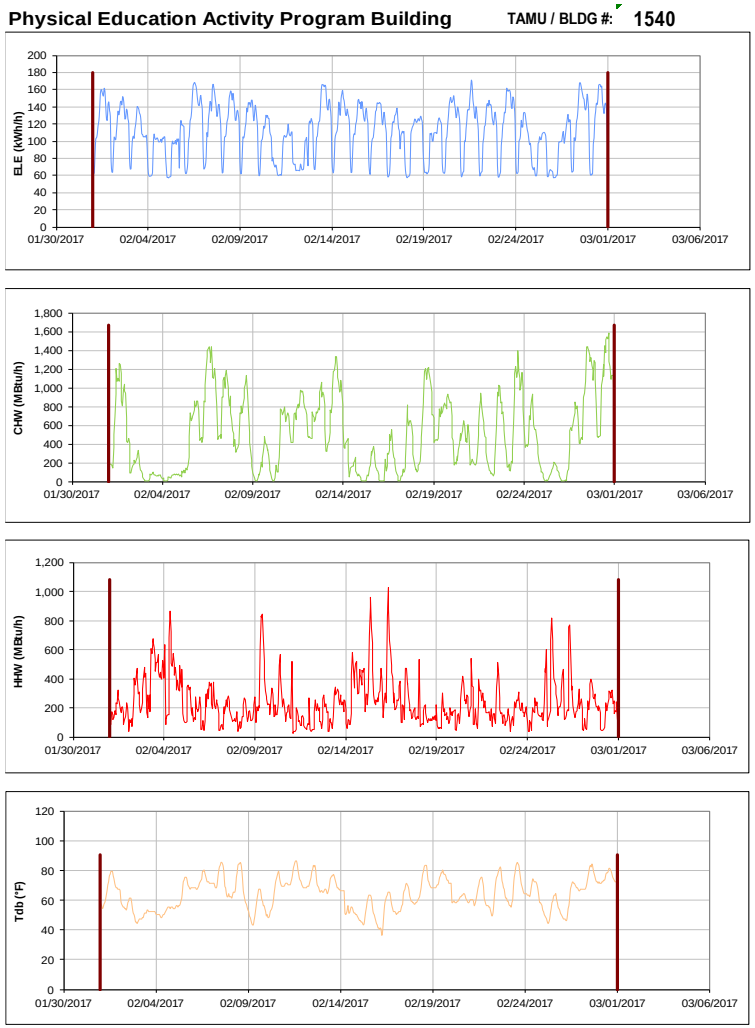



Figure III-168 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Physical Education Activity Program Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

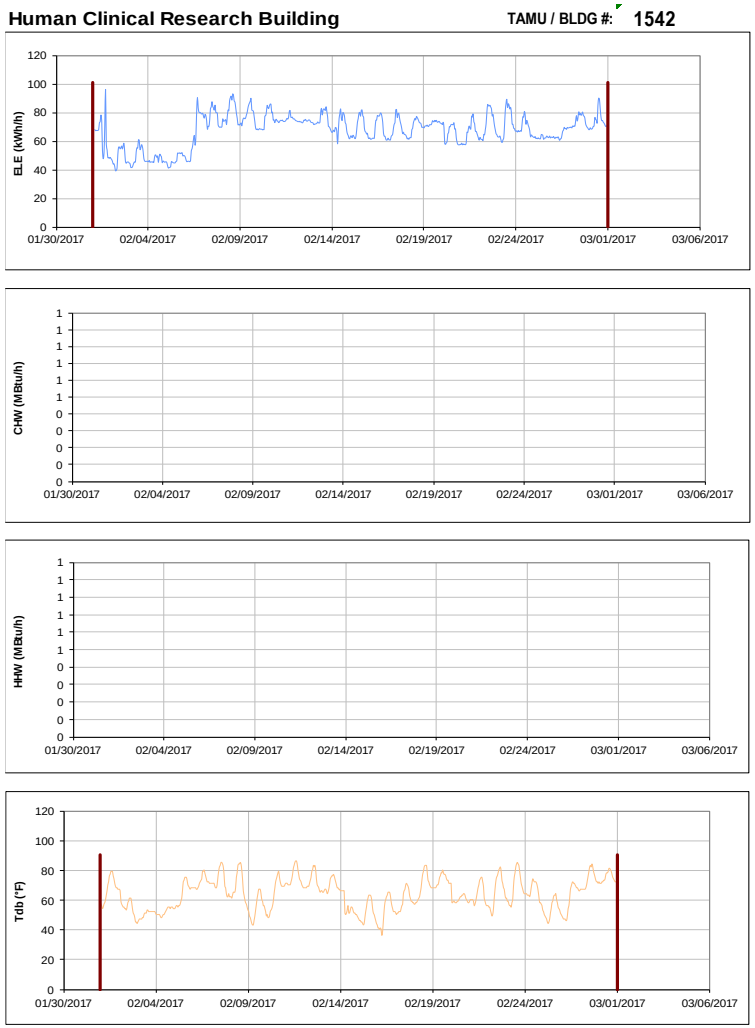



Figure III-169 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Human Clinical Research Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

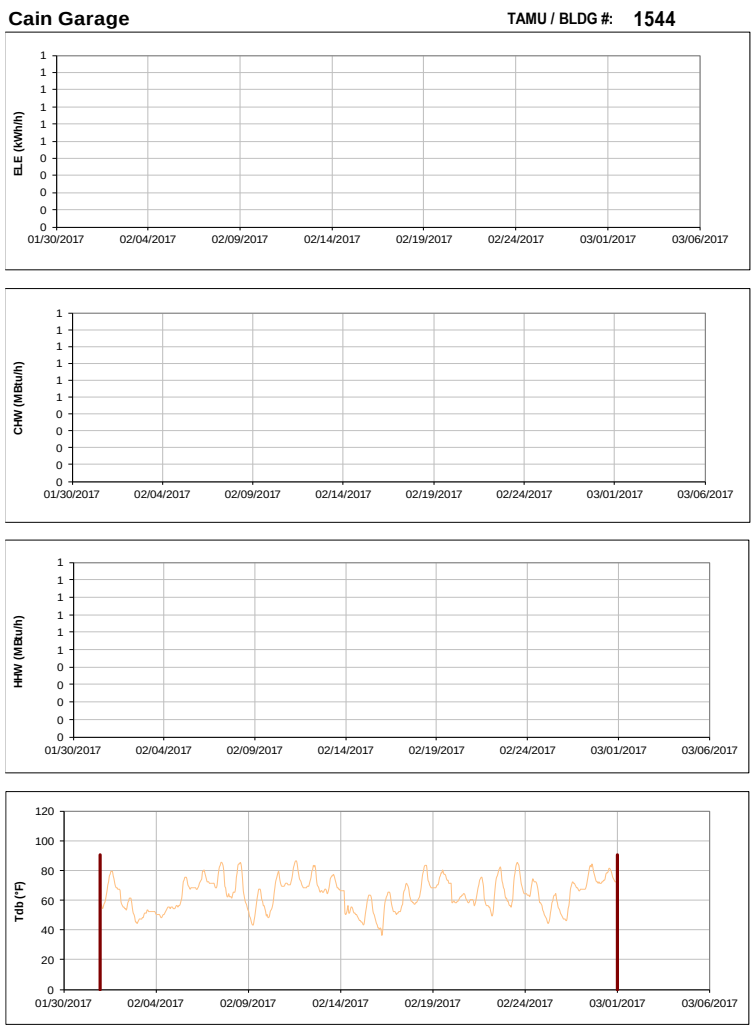



Figure III-170 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Cain Garage during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

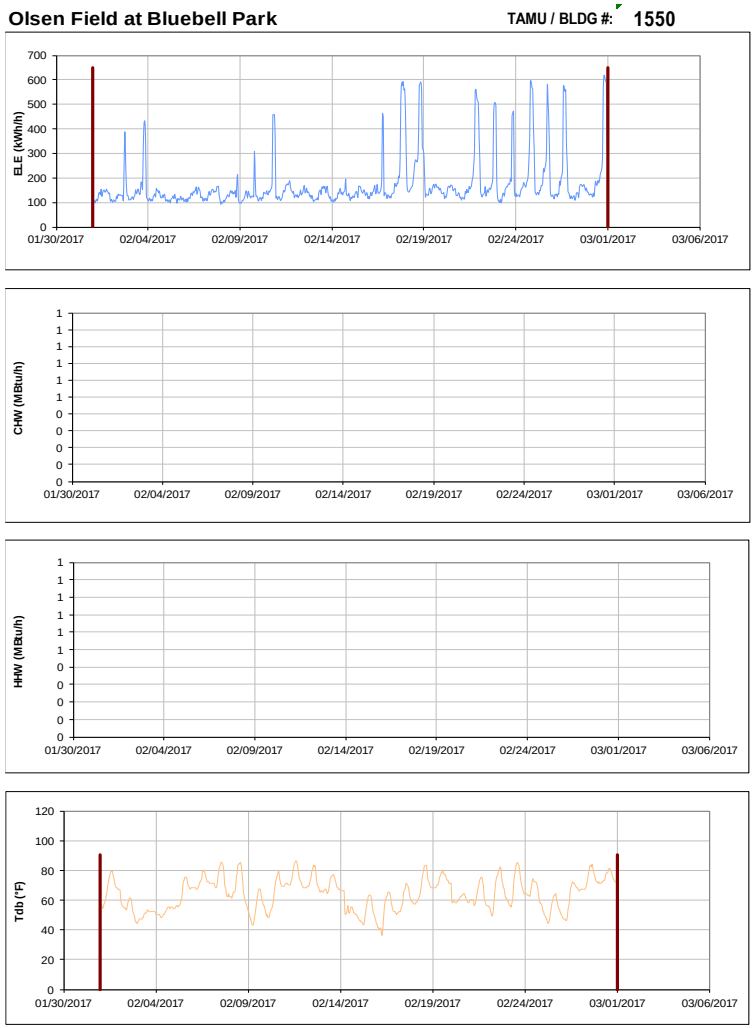



Figure III-171 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Olsen Field at Bluebell Park during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

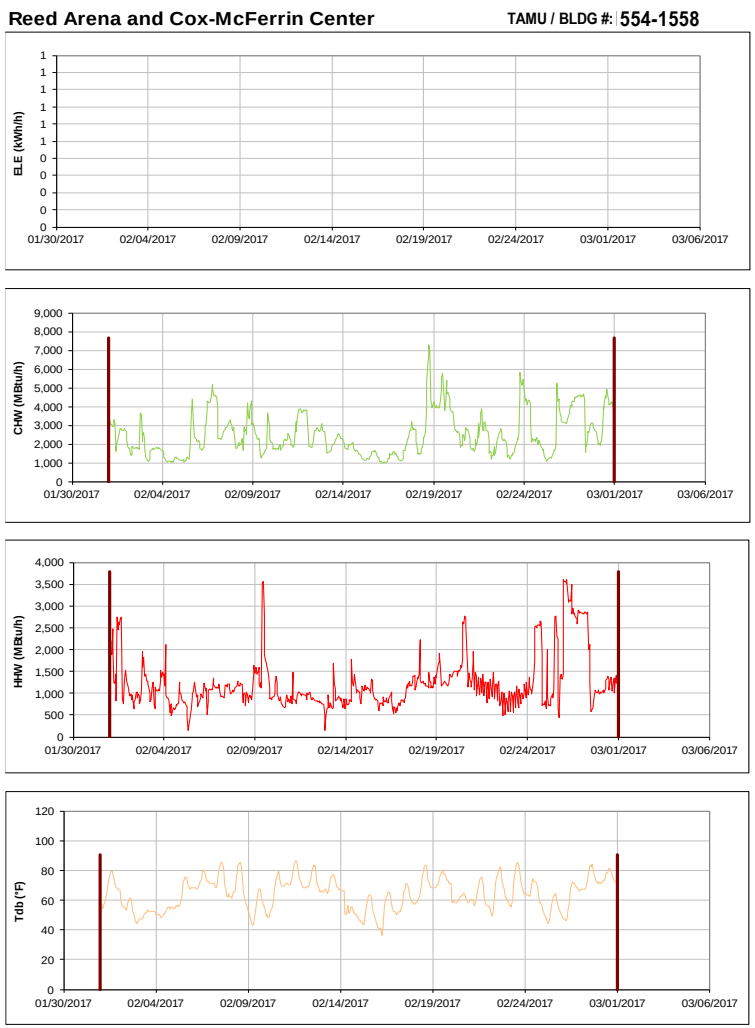



Figure III-172 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reed Arena and Cox-McFerrin Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

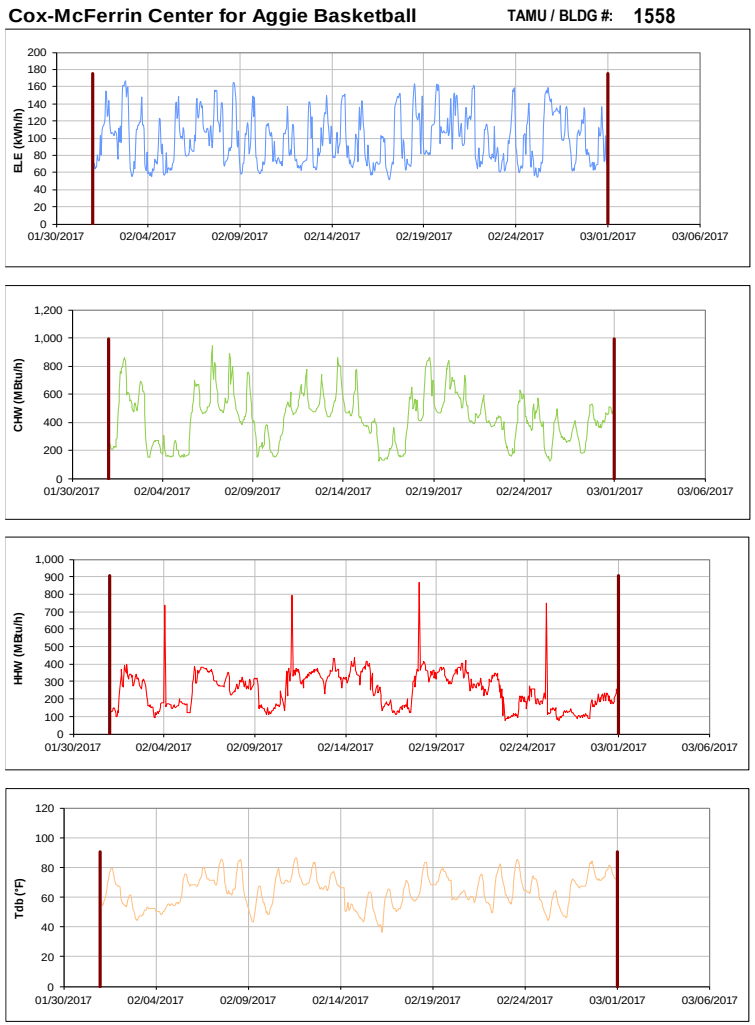



Figure III-173 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Cox-McFerrin Center for Aggie Basketball during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

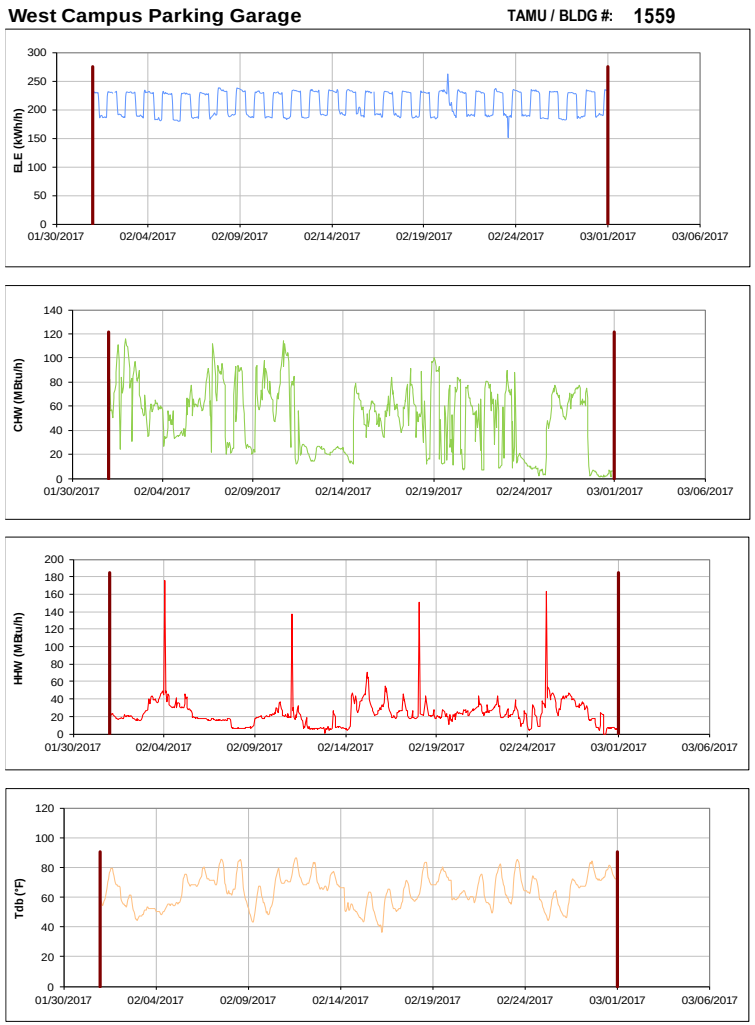



Figure III-174 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for West Campus Parking Garage during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

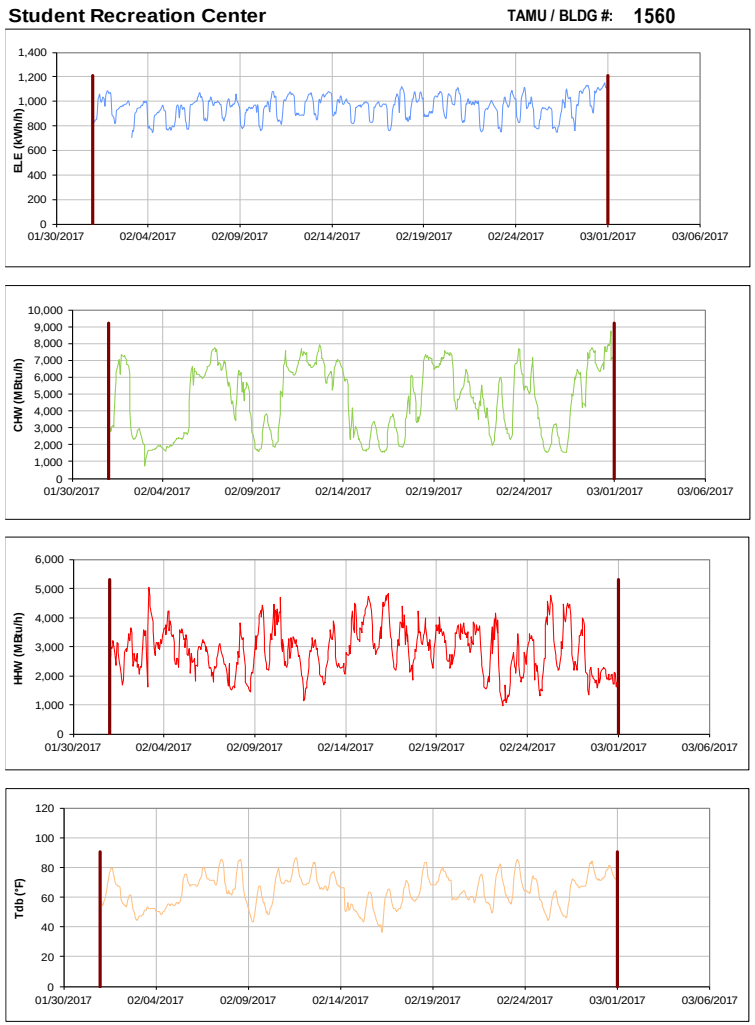



Figure III-175 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Student Recreation Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

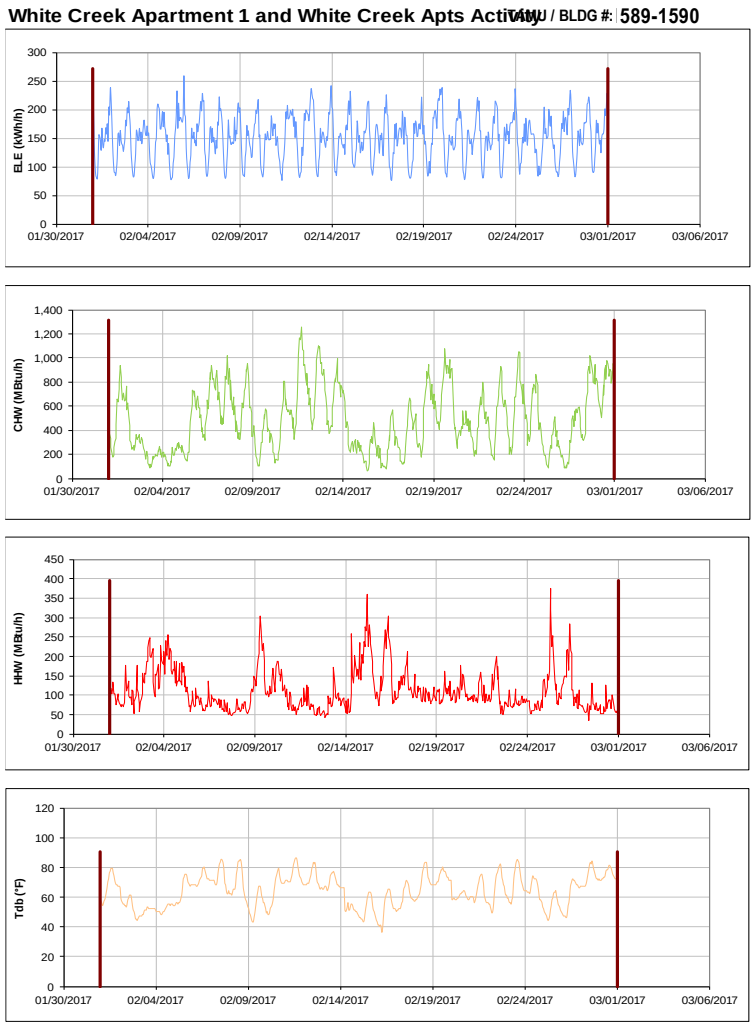



Figure III-176 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Creek Apartment 1 and White Creek Apts Activity Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station,

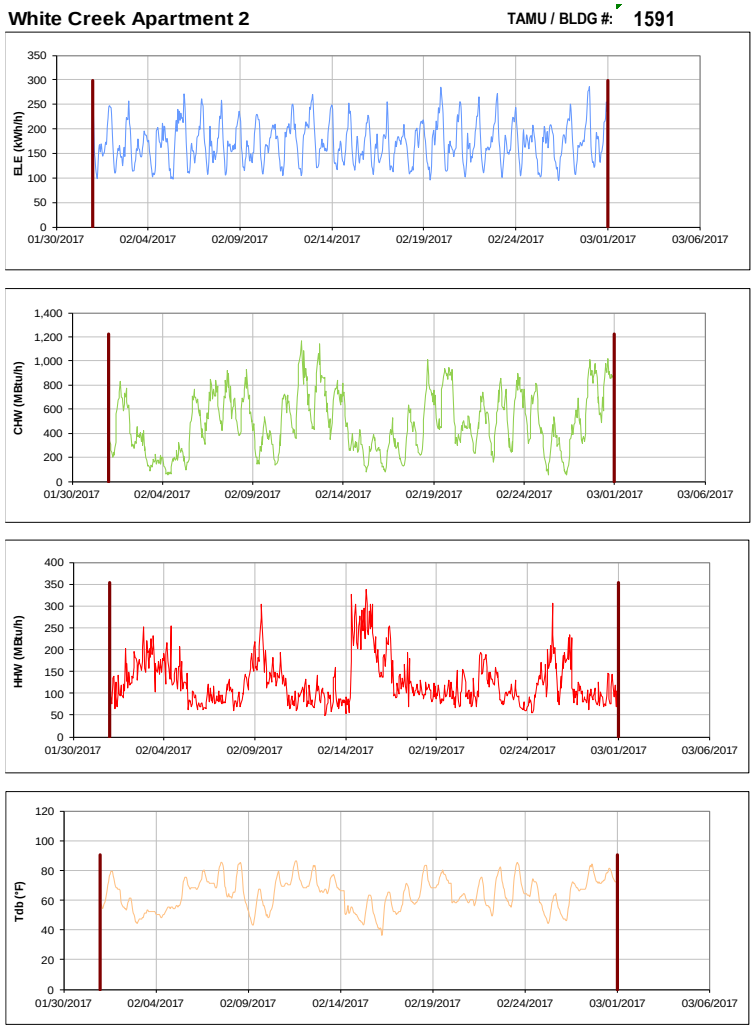



Figure III-177 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Creek Apartment 2 during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

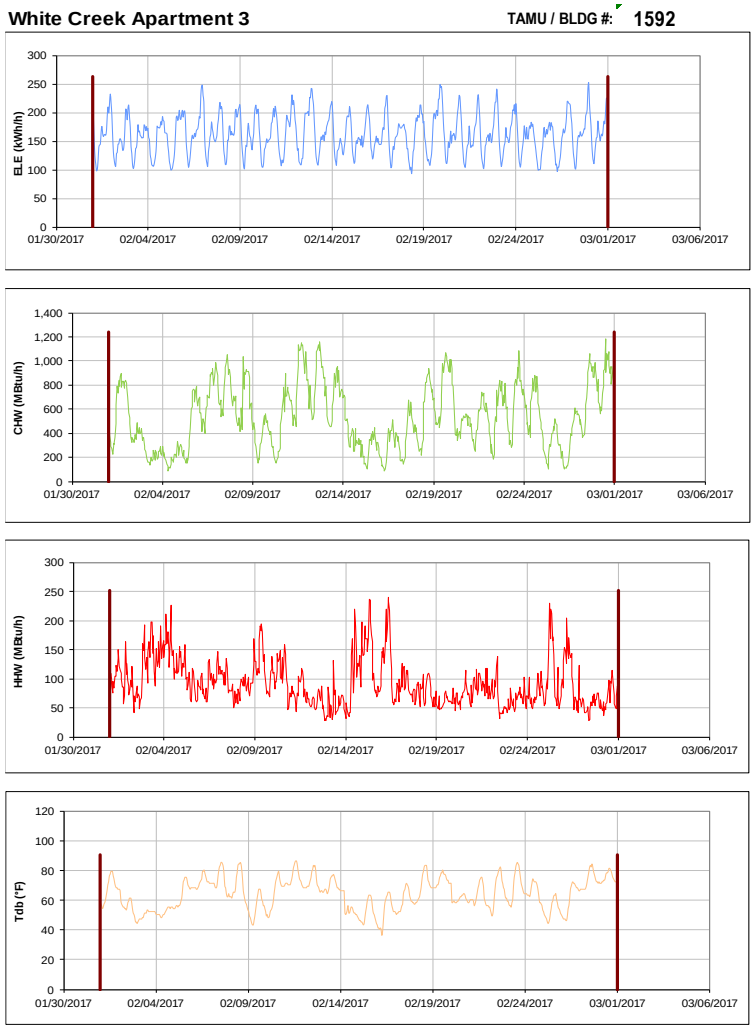



Figure III-178 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Creek Apartment 3 during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

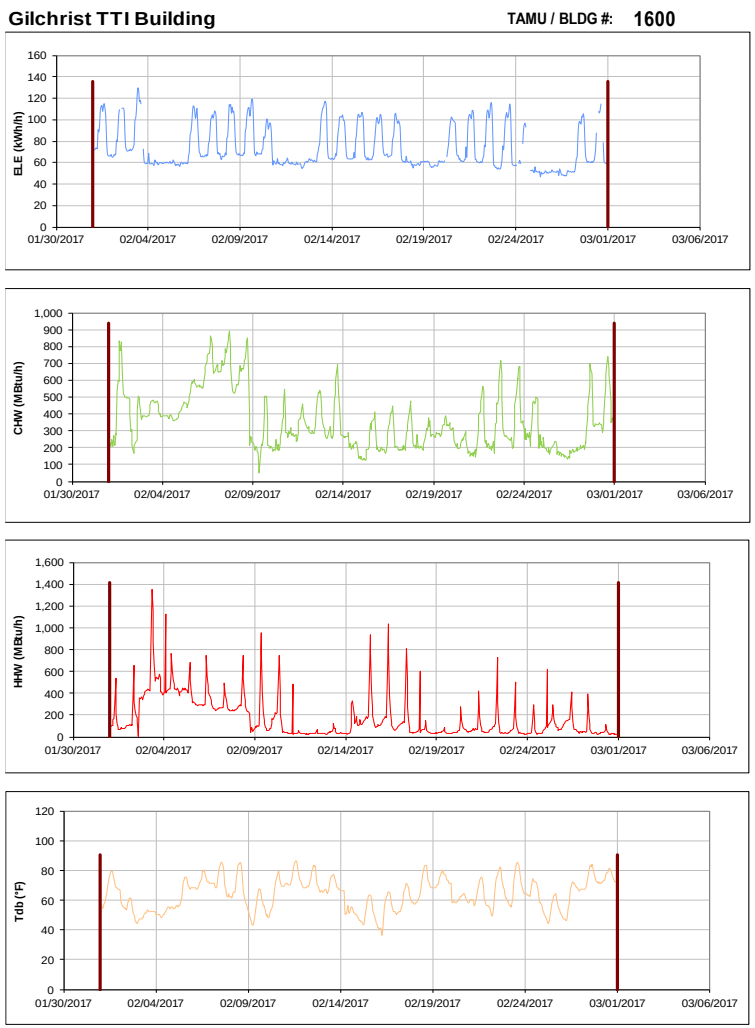



Figure III-179 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Gilchrist TTI Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

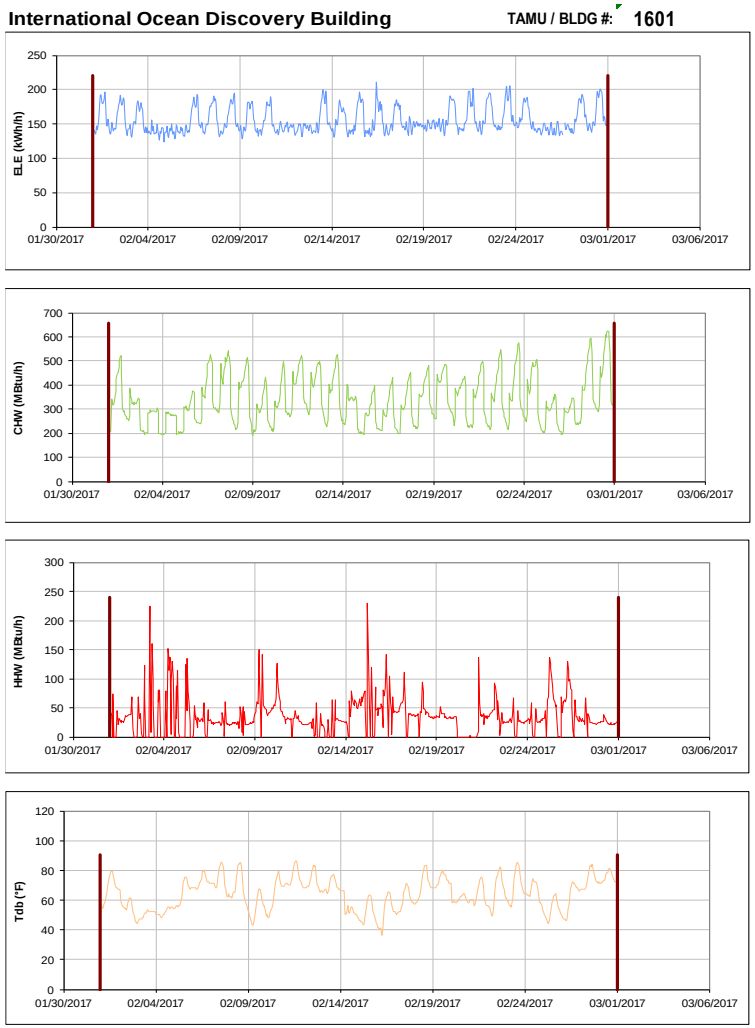



Figure III-180 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for International Ocean Discovery Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

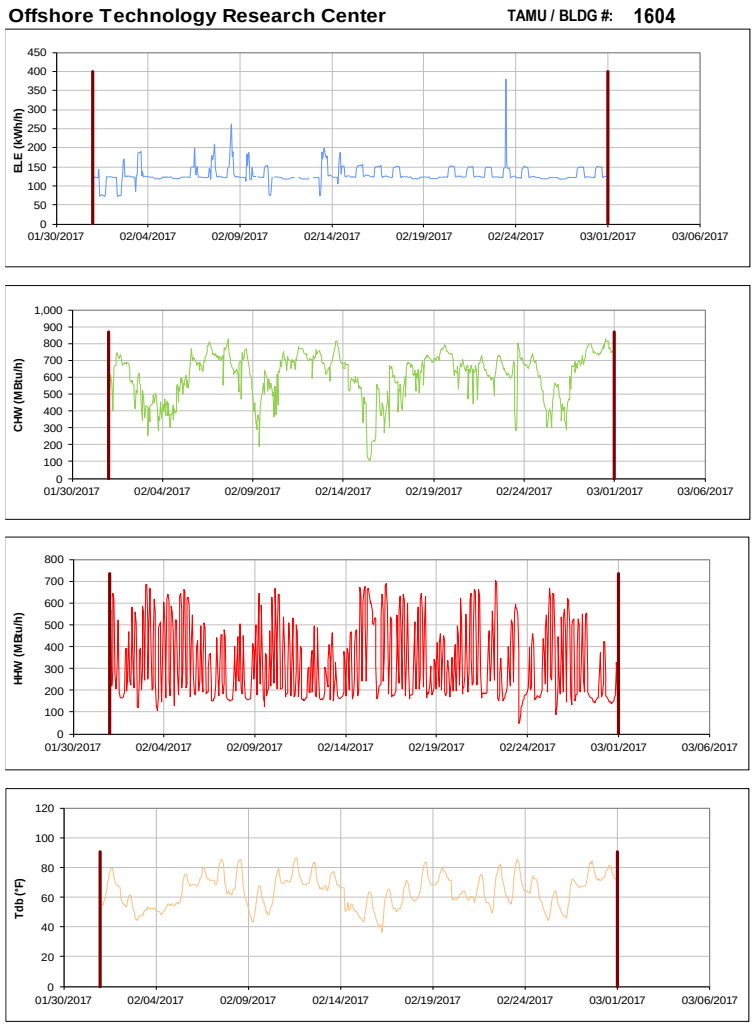



Figure III-181 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Offshore Technology Research Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

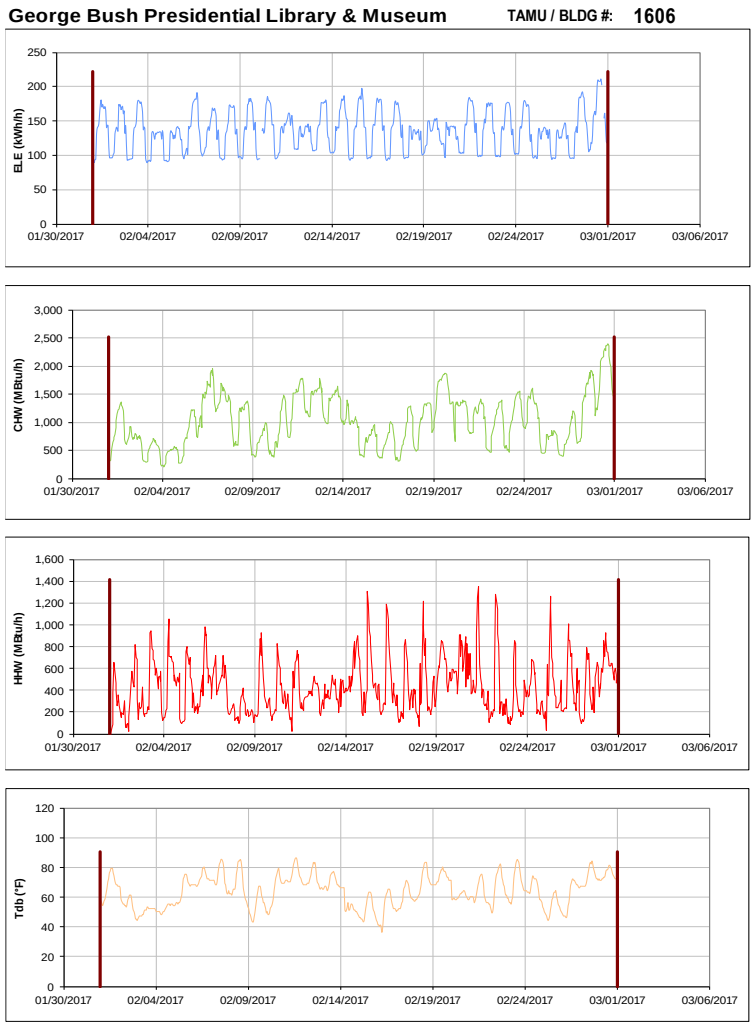



Figure III-182 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for George Bush Presidential Library & Museum during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

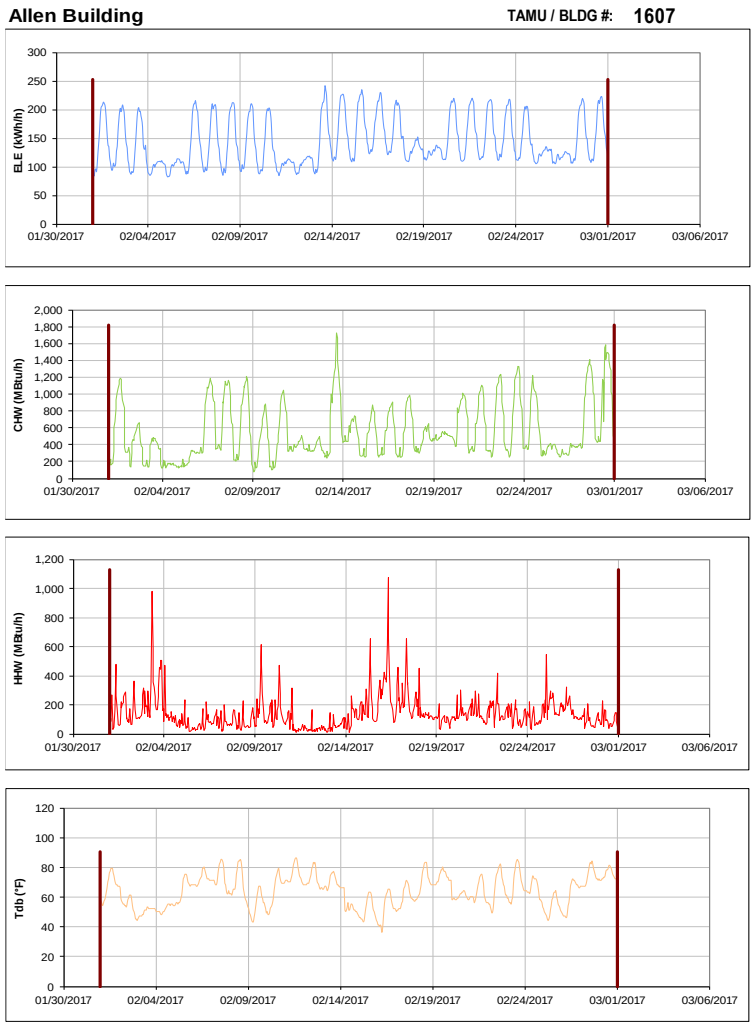



Figure III-183 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Allen Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

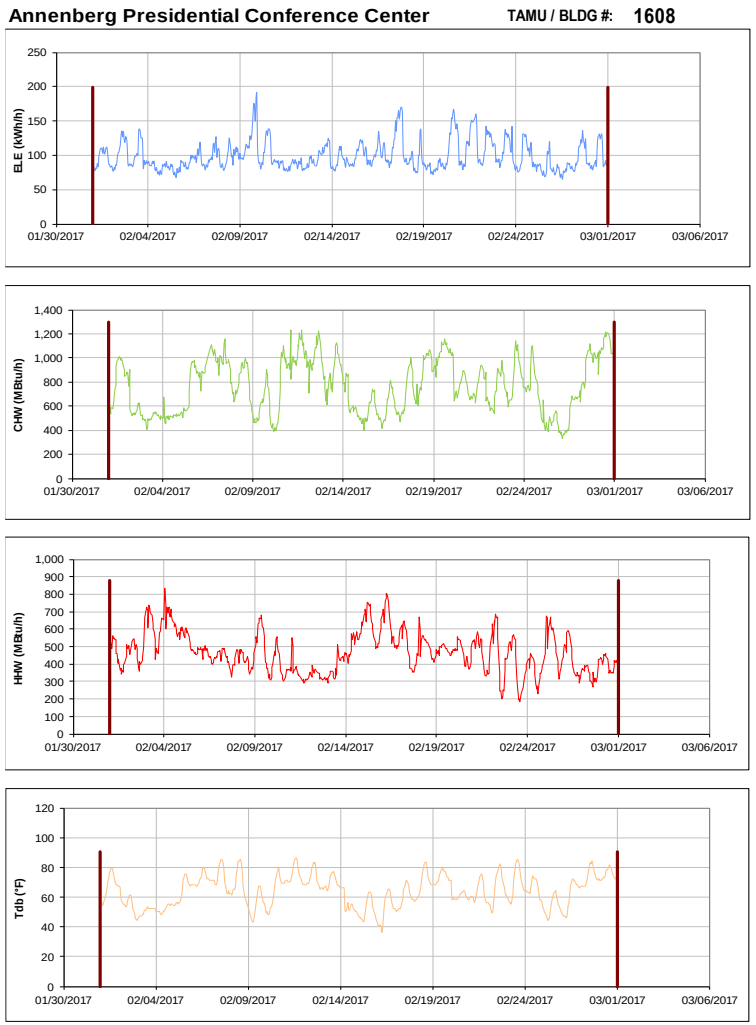



Figure III-184 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Annenberg Presidential Conference Center during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-185 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TTI Headquarters during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

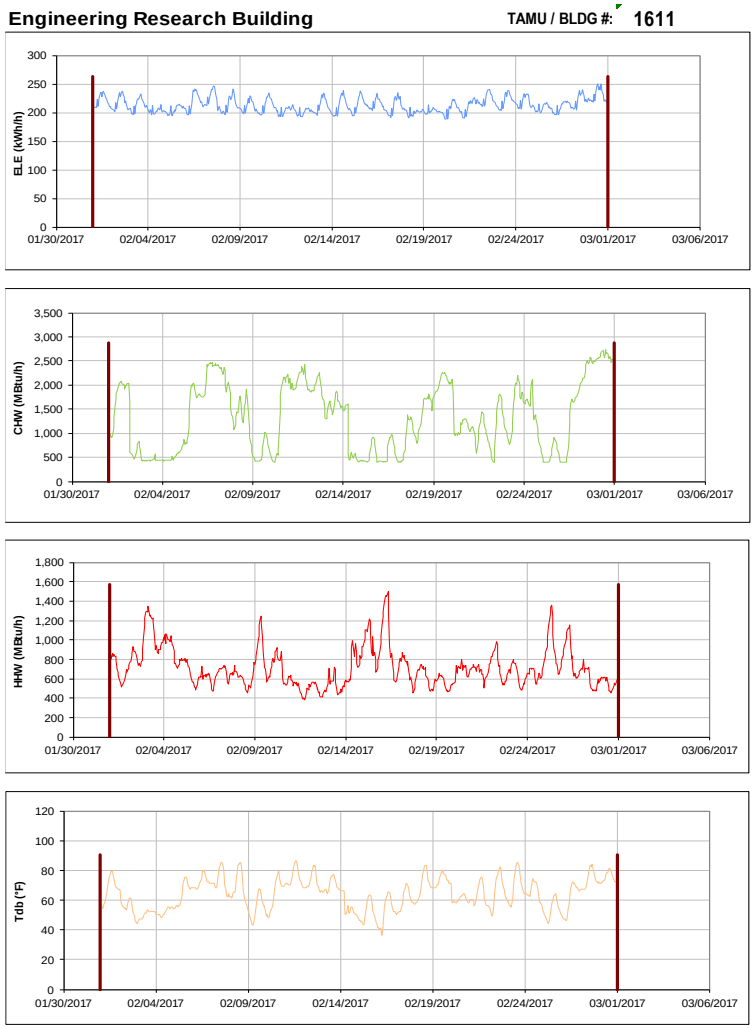



Figure III-186 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Engineering Research Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-187 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for General Services Complex during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

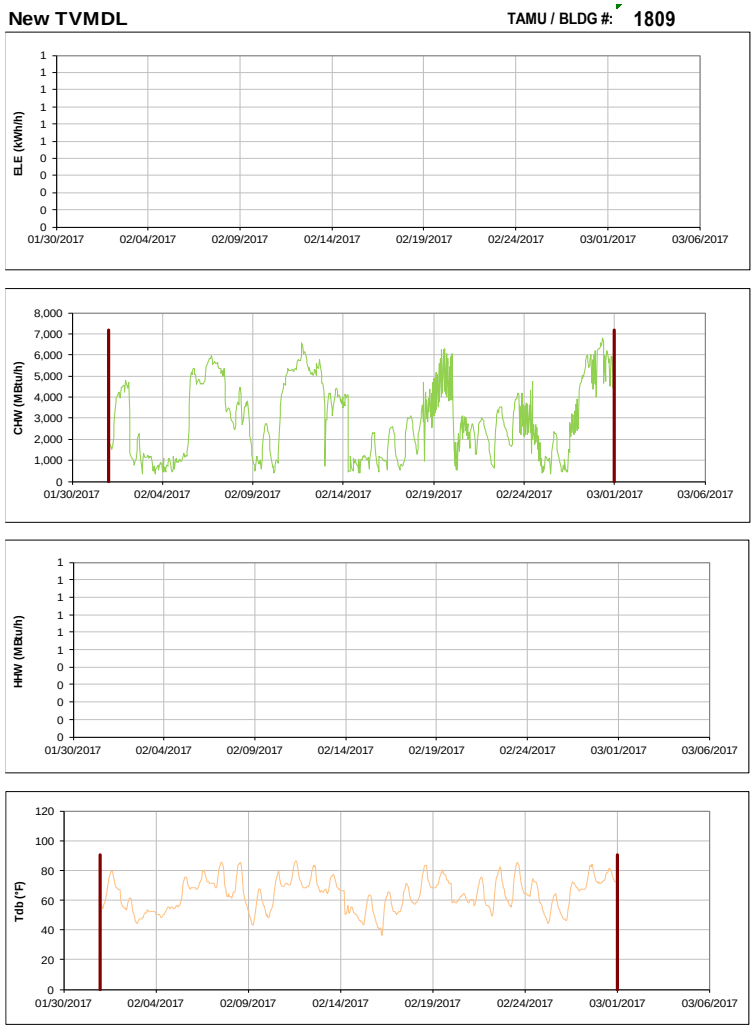



Figure III-188 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for New TVMDL during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

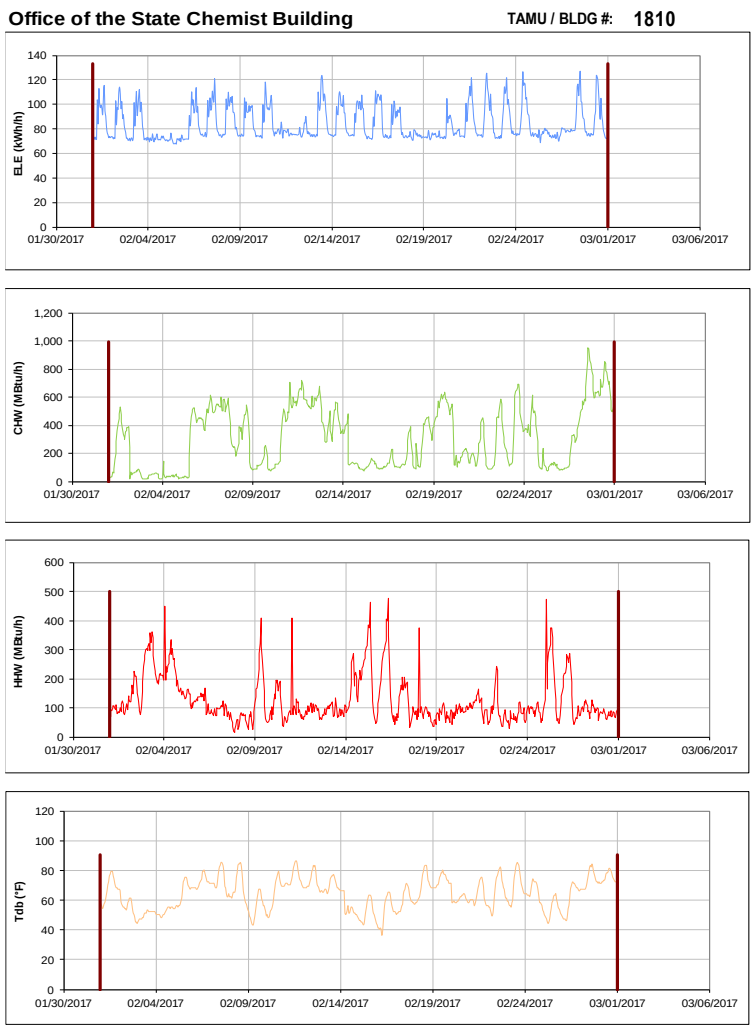



Figure III-189 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Office of the State Chemist Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-190 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Vet Med Research Bldg Addition during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

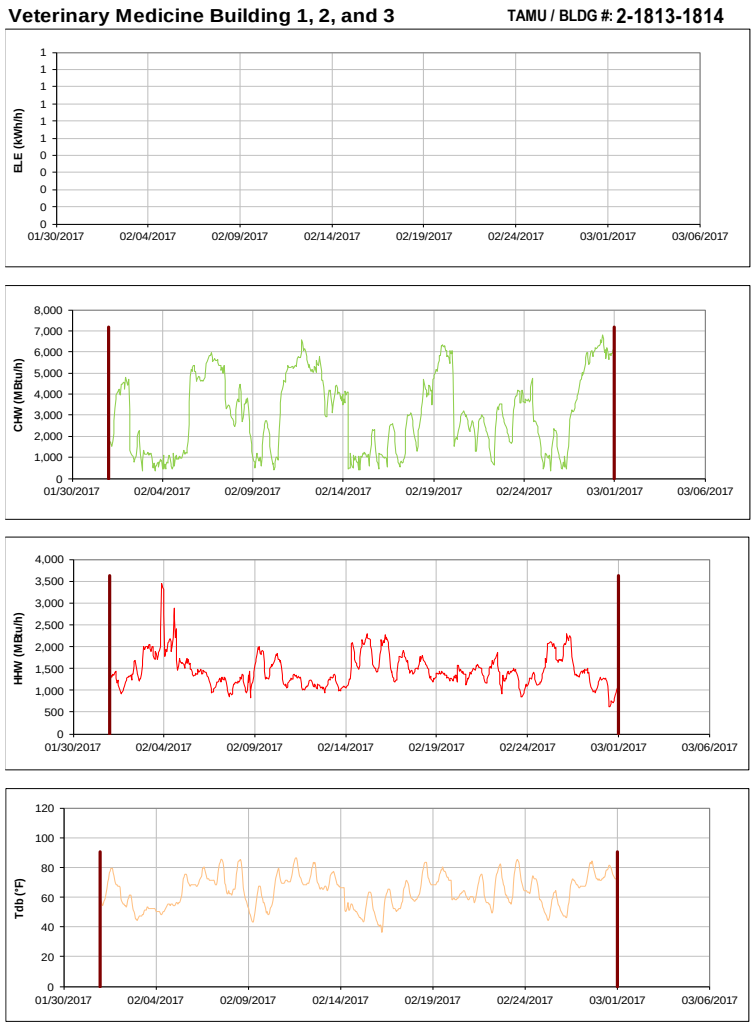



Figure III-191 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Medicine Building 1, 2, and 3 during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-192 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Texas Institute for Genomic Medicine during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX


Figure III-193 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Texas A&M Institute for Preclinical Studies A during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

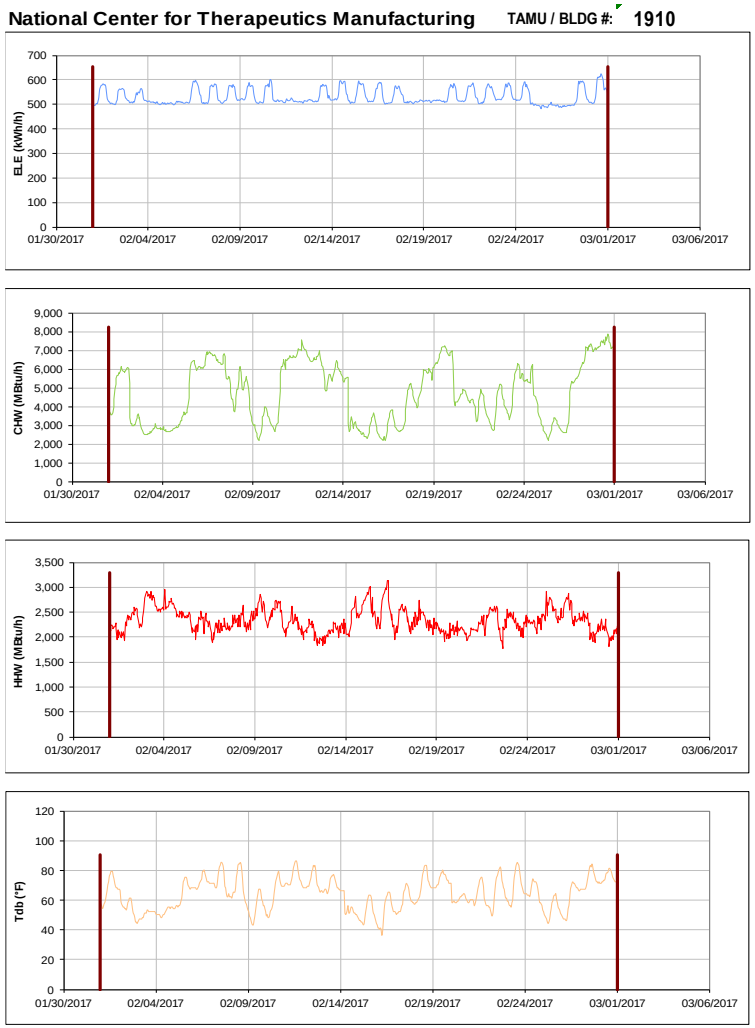



Figure III-194 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for National Center for Therapeutics Manufacturing during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

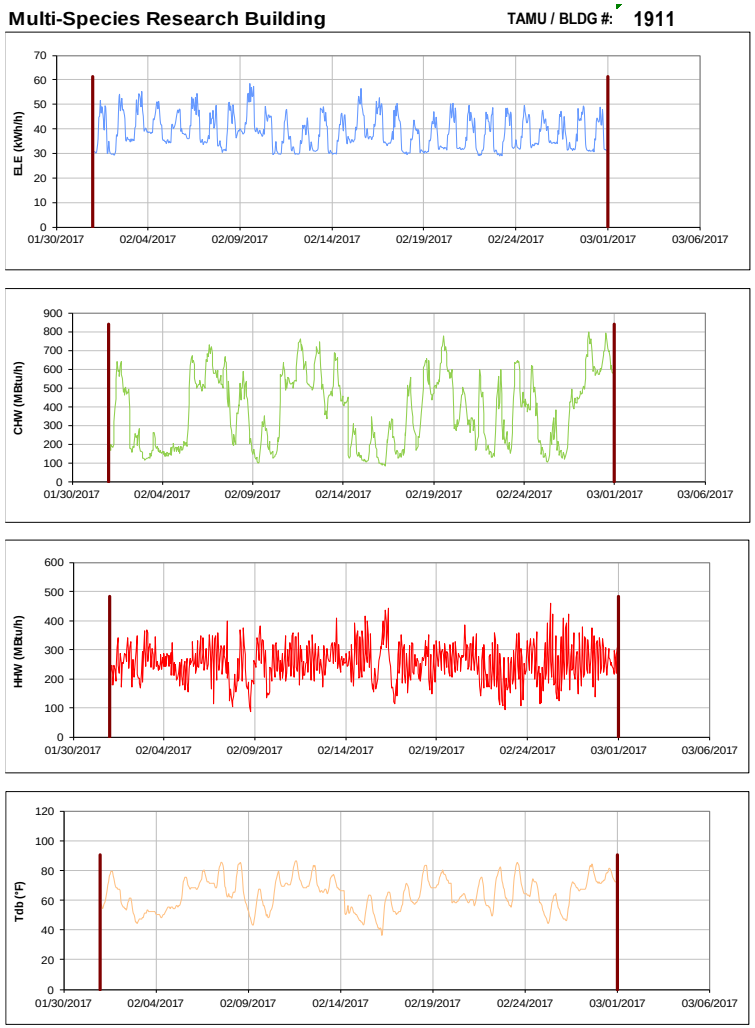



Figure III-195 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Multi-Species Research Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

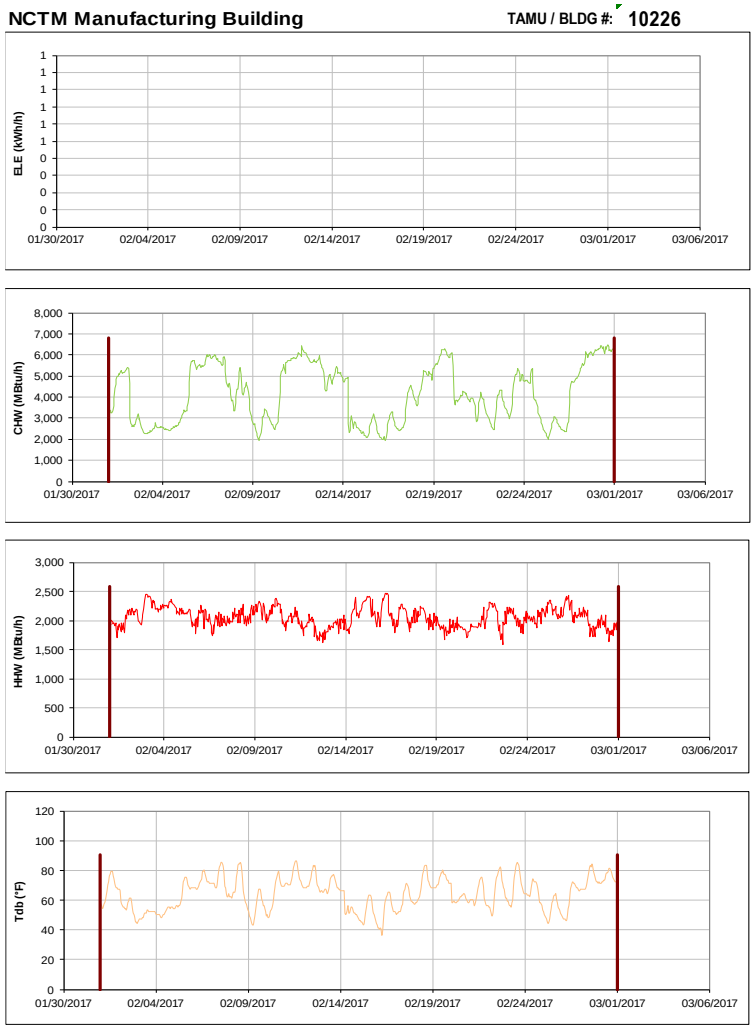



Figure III-196 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for NCTM Manufacturing Building during the Month of February 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

# IV. Energy Balance Plots for February 2017 Consumption

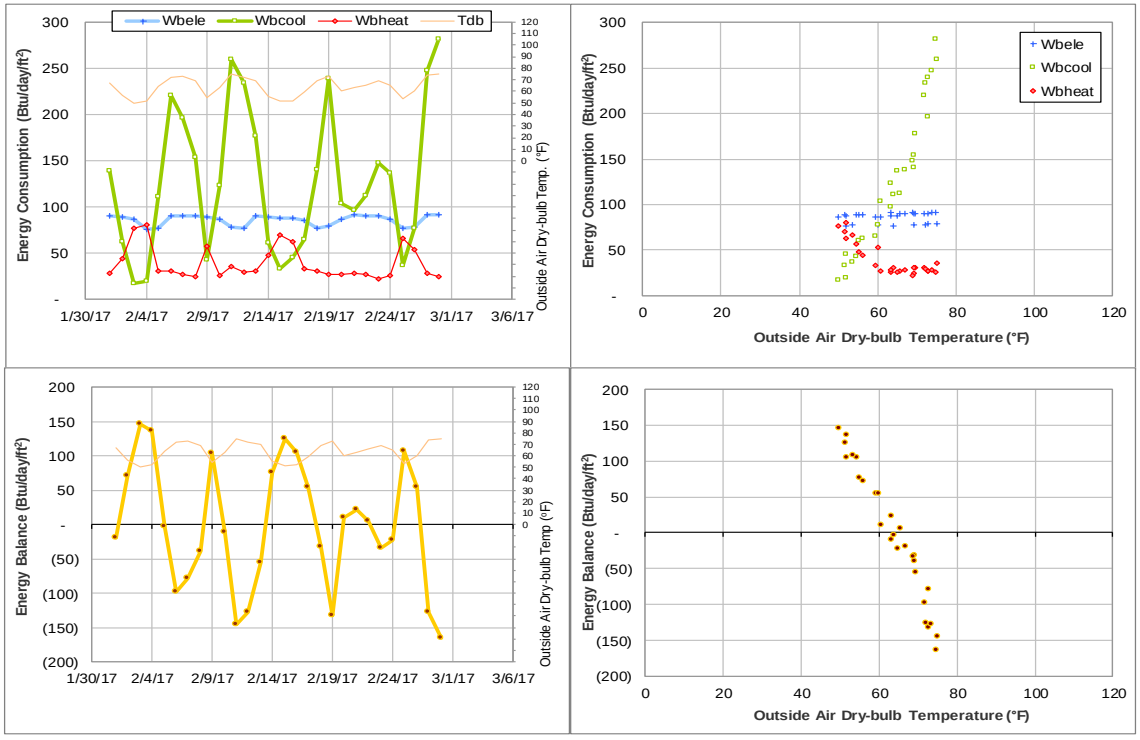



Figure IV-1 Emerging Technologies Building TAMU BLDG # 270 Energy Balance Plot during February 2017

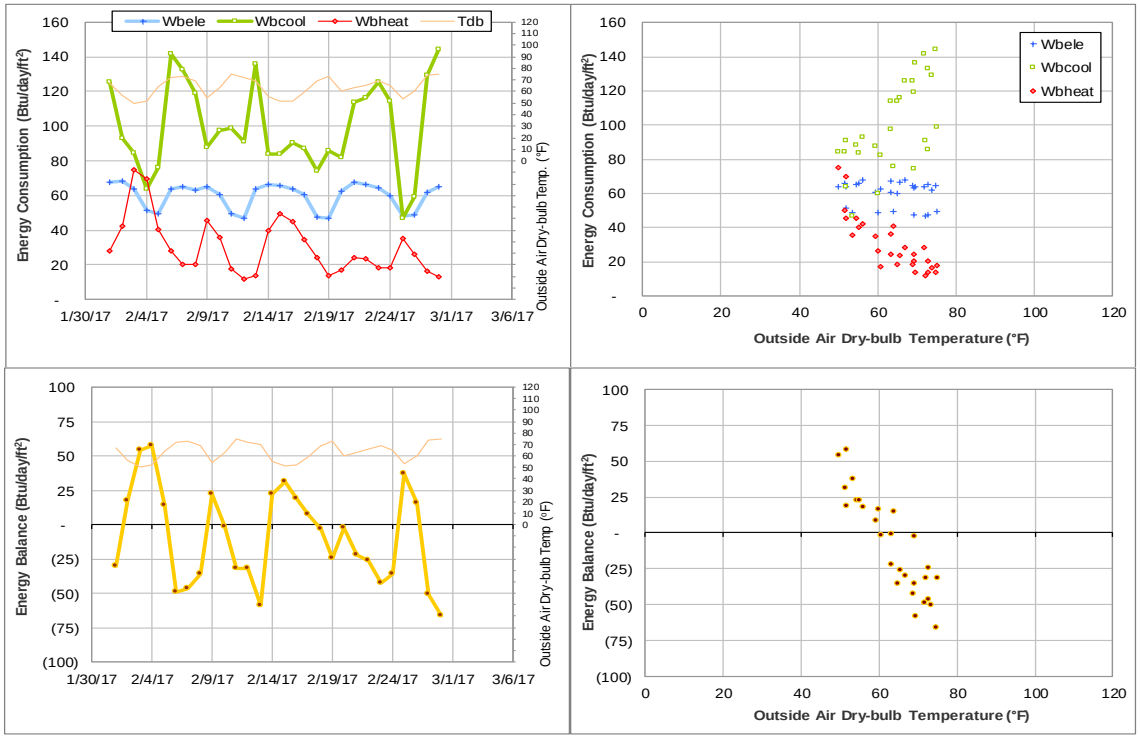



Figure IV-2 Liberal Arts and Arts & Humanities Building TAMU BLDG # 275 Energy Balance Plot during February 2017

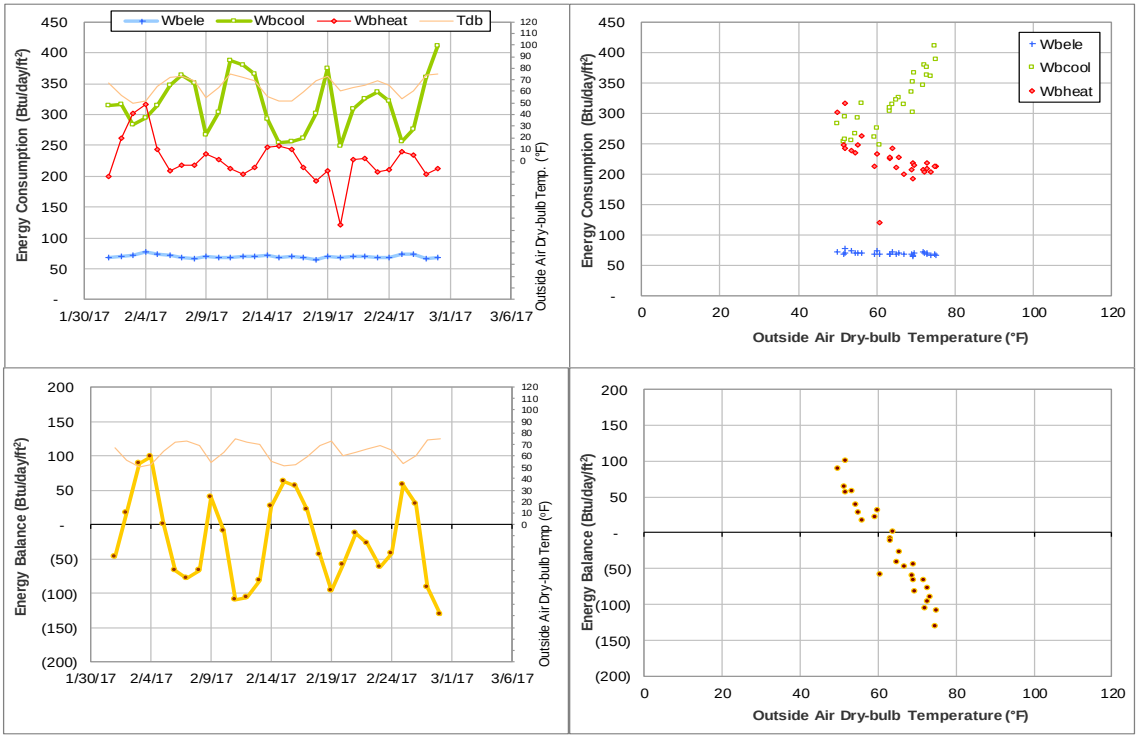



Figure IV-3 Wells Residence Hall TAMU BLDG # 290 Energy Balance Plot during February 2017

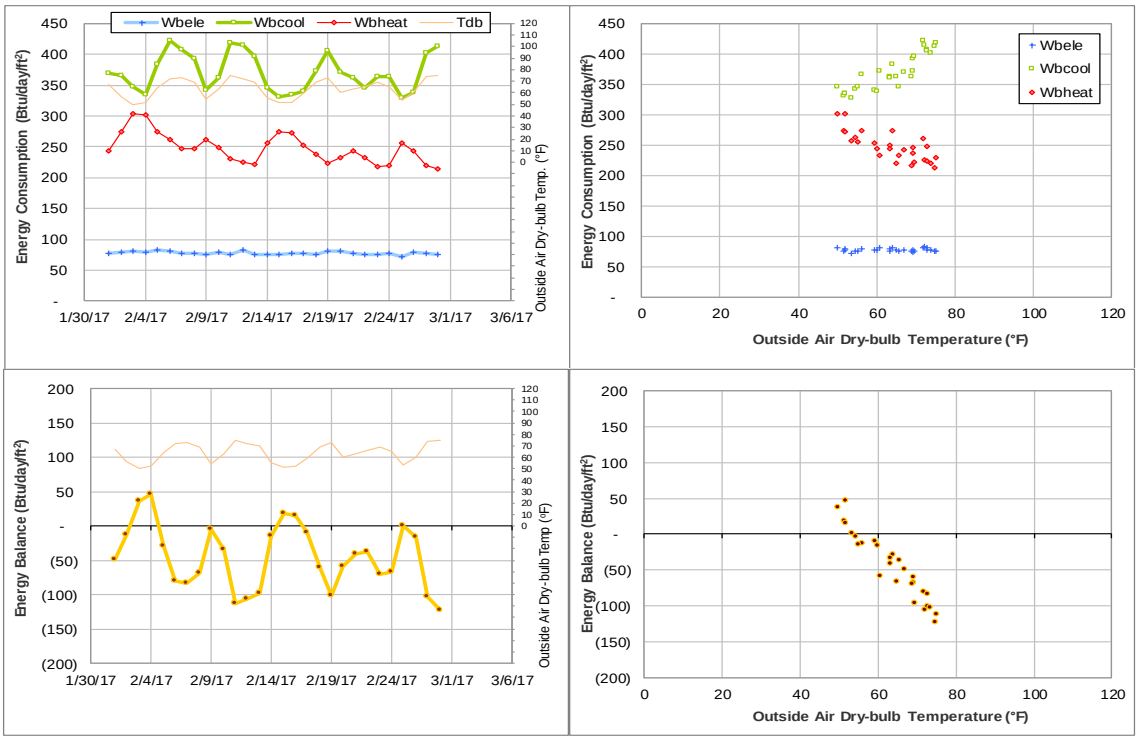



Figure IV-4 Rudder Residence Hall TAMU BLDG # 291 Energy Balance Plot during February 2017

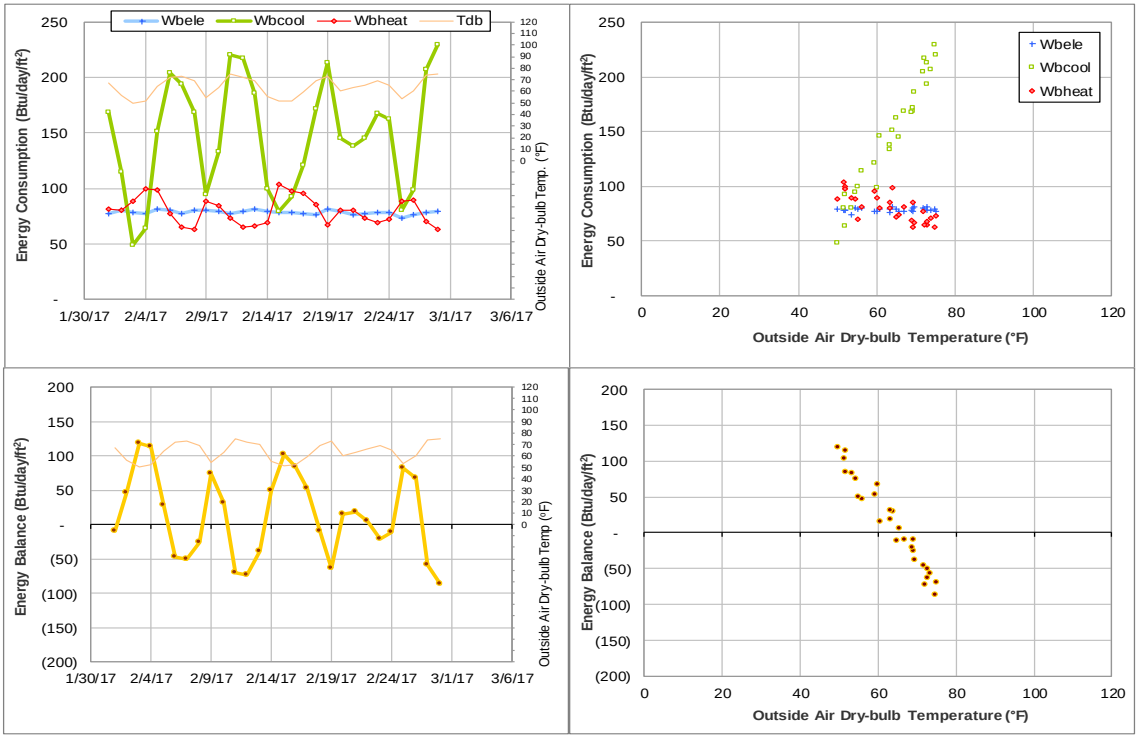



Figure IV-5 Eppright Residence Hall TAMU BLDG # 292 Energy Balance Plot during February 2017

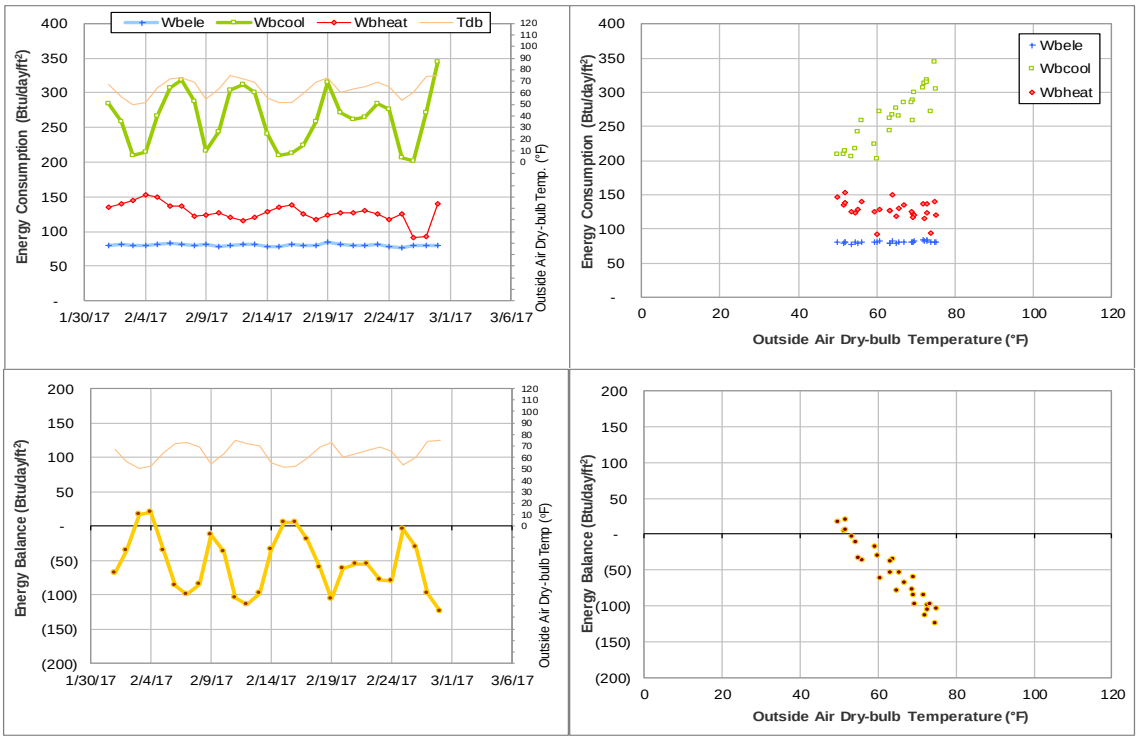



Figure IV-6 Appelt Residence Hall TAMU BLDG # 293 Energy Balance Plot during February 2017

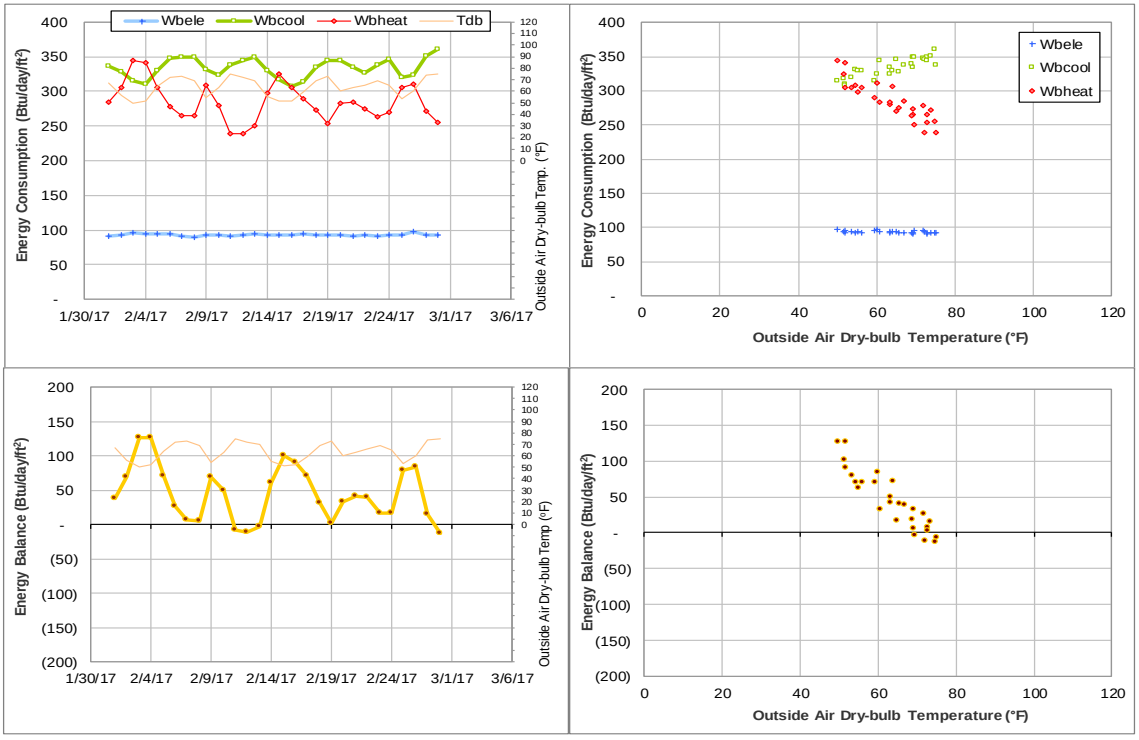



Figure IV-7 Lechner Residence Hall TAMU BLDG # 294 Energy Balance Plot during February 2017

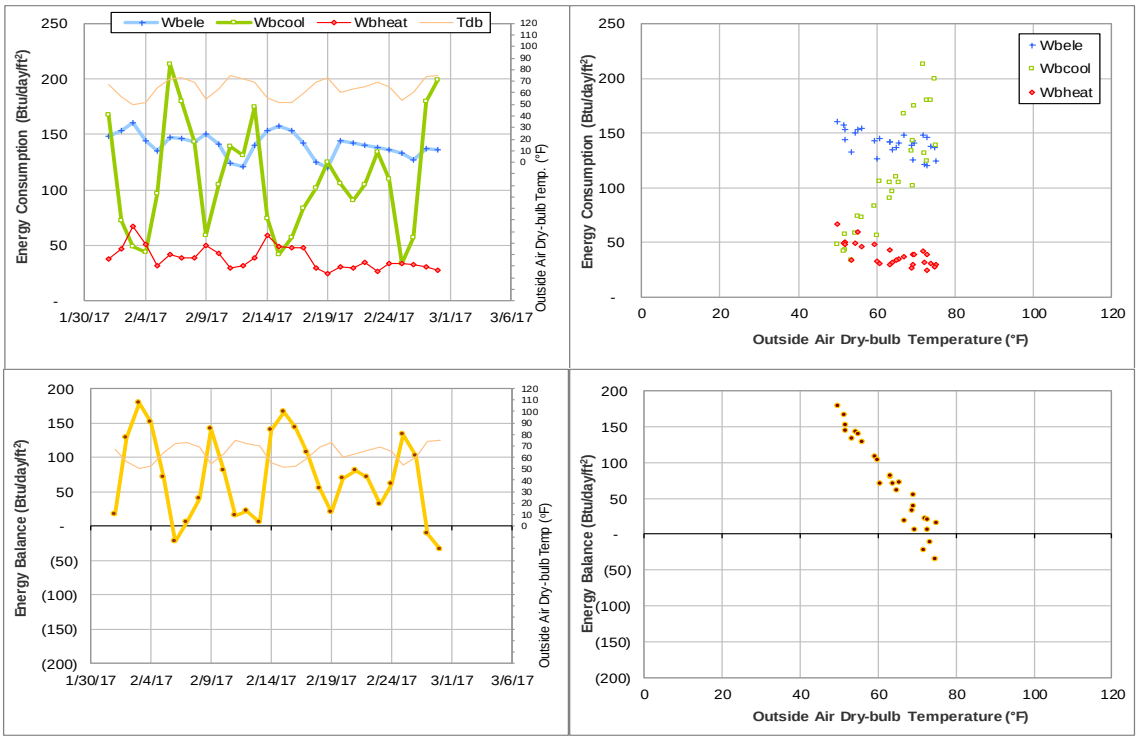



Figure IV-8 Mitchell Inst. for Fundamental Phys & Astronomy TAMU BLDG # 296 Energy Balance Plot during February 2017

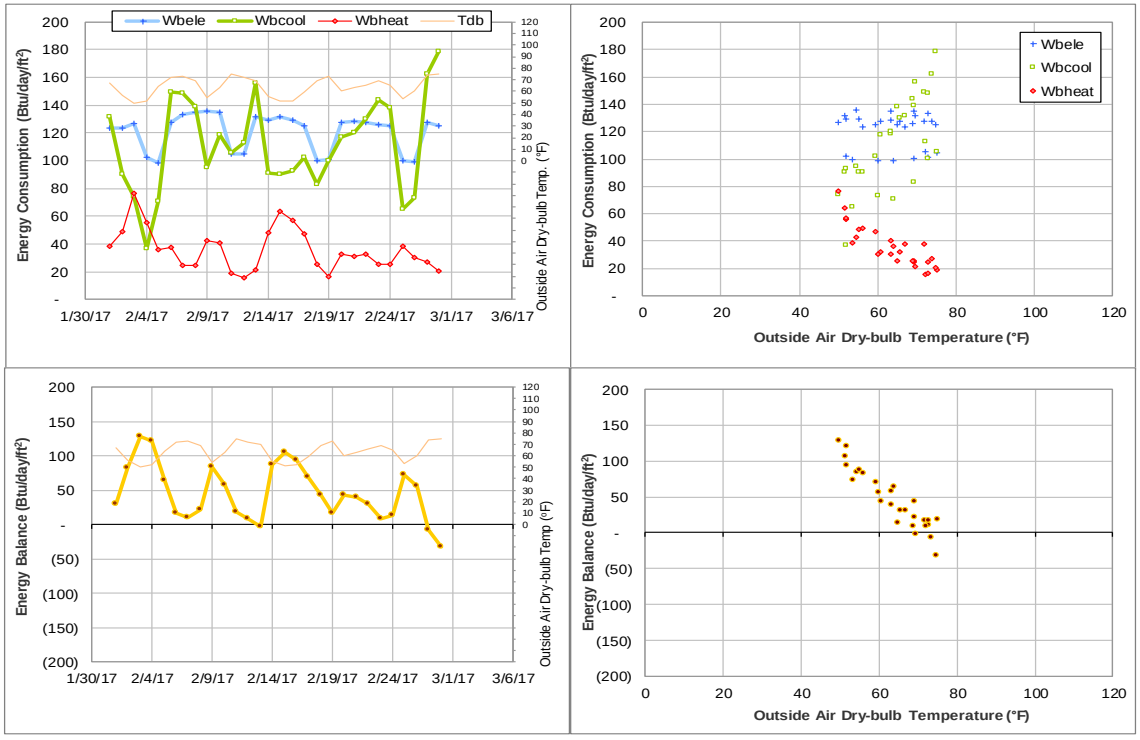



Figure IV-9 CE TTI Office & Lab Building TAMU BLDG # 325 Energy Balance Plot during February 2017

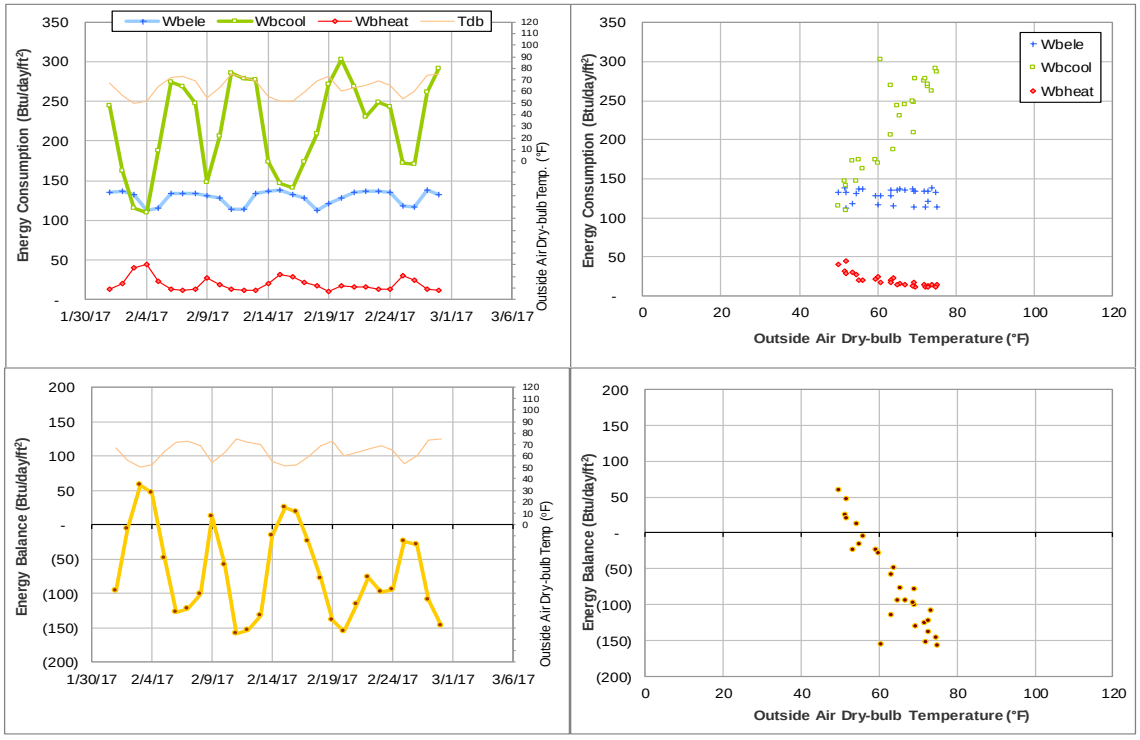



Figure IV-10 Bright Aerospace Building TAMU BLDG # 353 Energy Balance Plot during February 2017

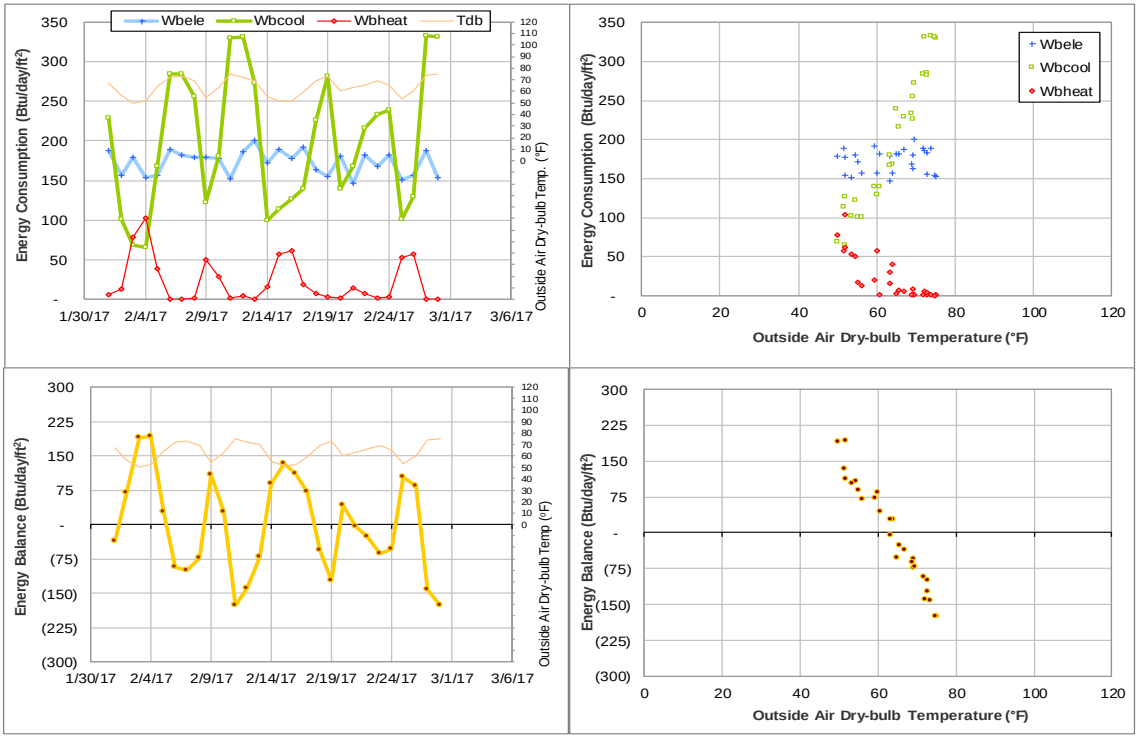



Figure IV-11 Davis Football Player Development Center TAMU BLDG # 358 Energy Balance Plot during February 2017

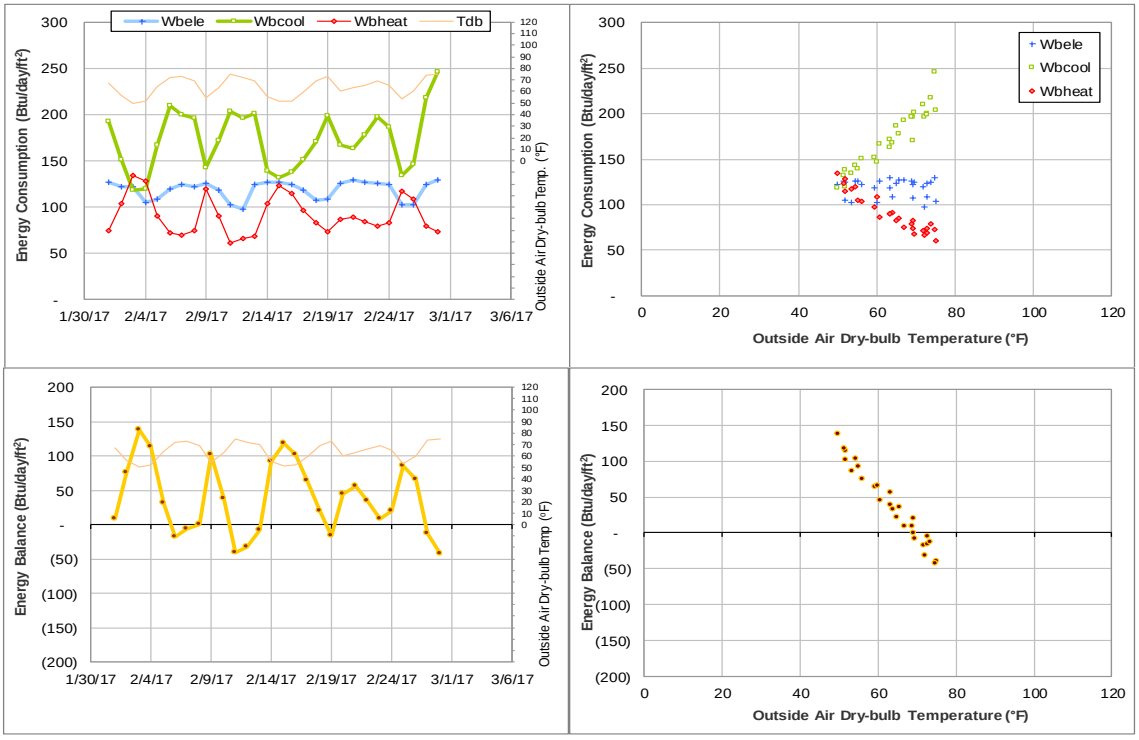



Figure IV-12 Architecture Building B&C TAMU BLDG # 359 Energy Balance Plot during February 2017

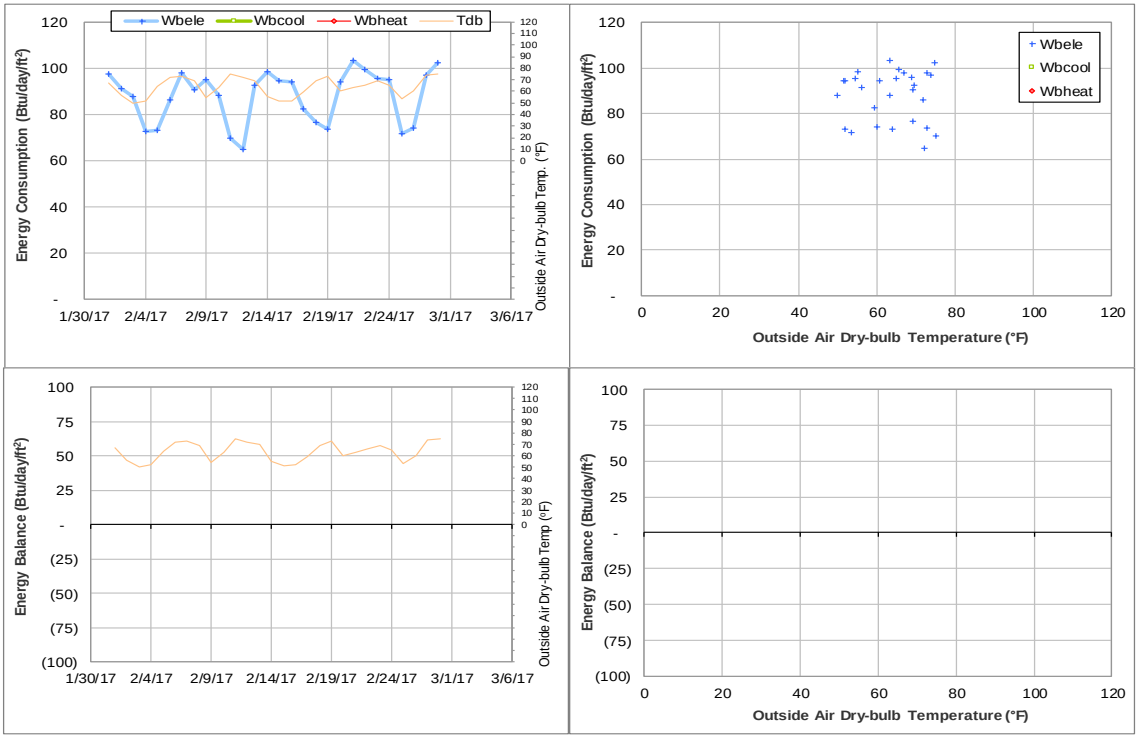



Figure IV-13 Architecture Building B TAMU BLDG # 359 Energy Balance Plot during February 2017

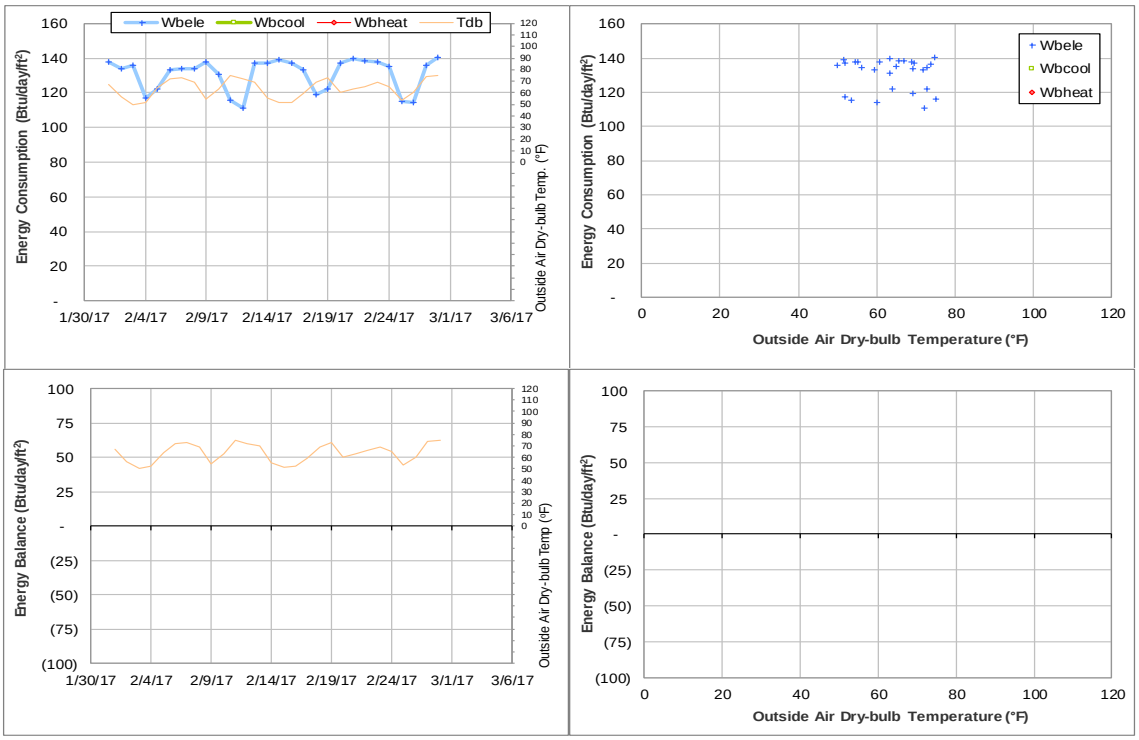



Figure IV-14 Architecture Building C TAMU BLDG # 432 Energy Balance Plot during February 2017

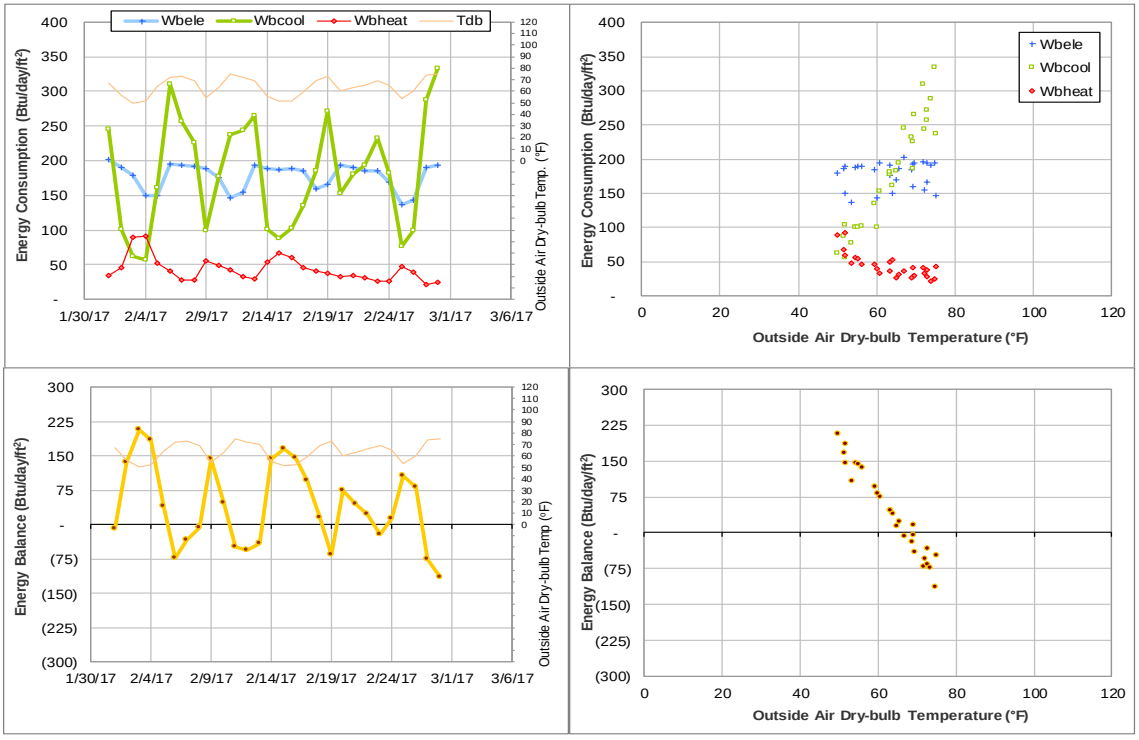



Figure IV-15 Bright Football Complex TAMU BLDG # 361 Energy Balance Plot during February 2017

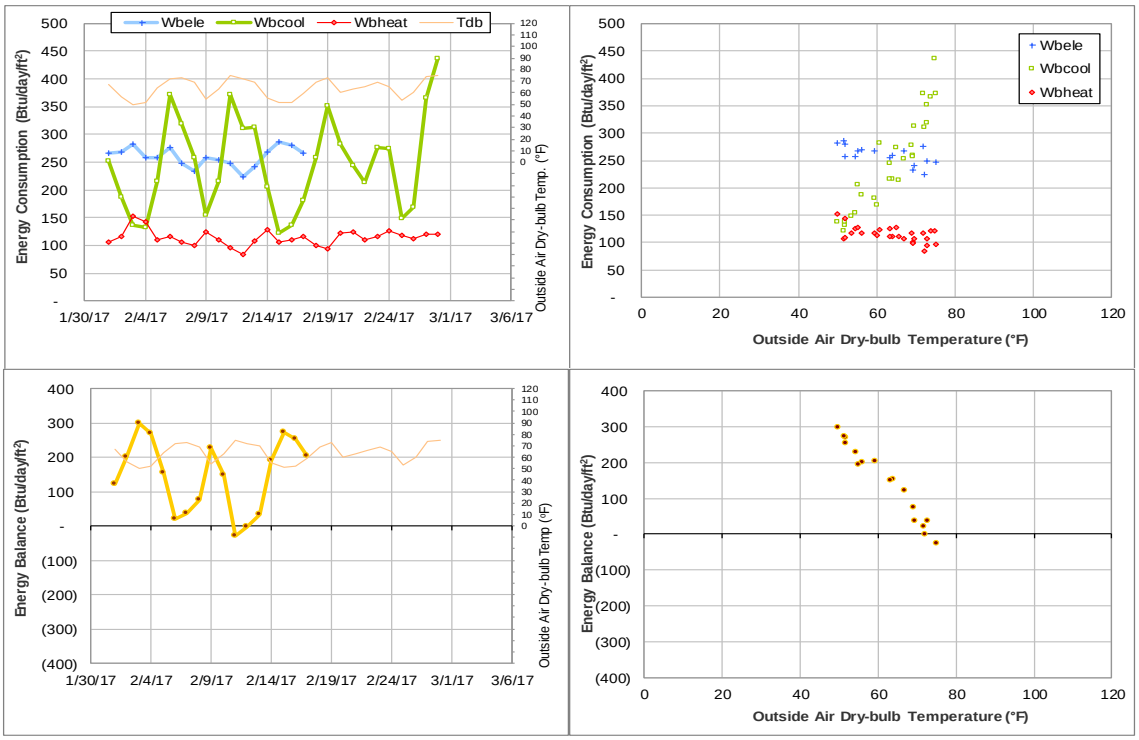



Figure IV-16 Kyle Field TAMU BLDG # 367 Energy Balance Plot during February 2017

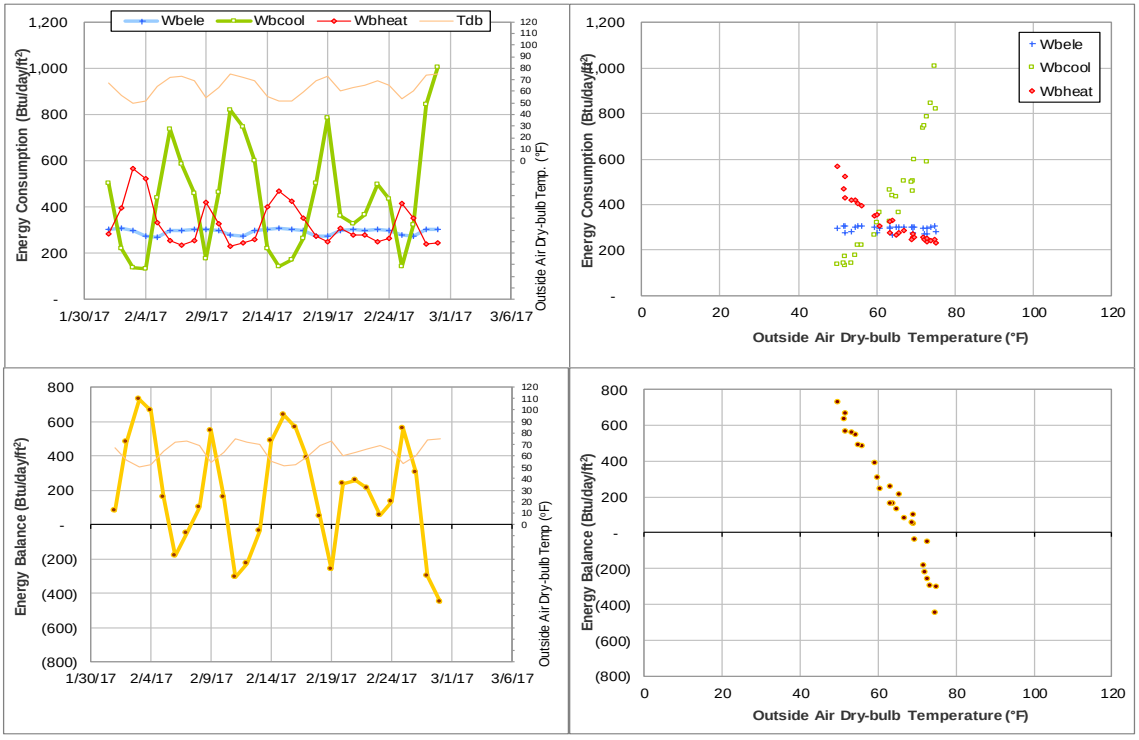



Figure IV-17 Chemistry Building Addition TAMU BLDG # 376 Energy Balance Plot during February 2017

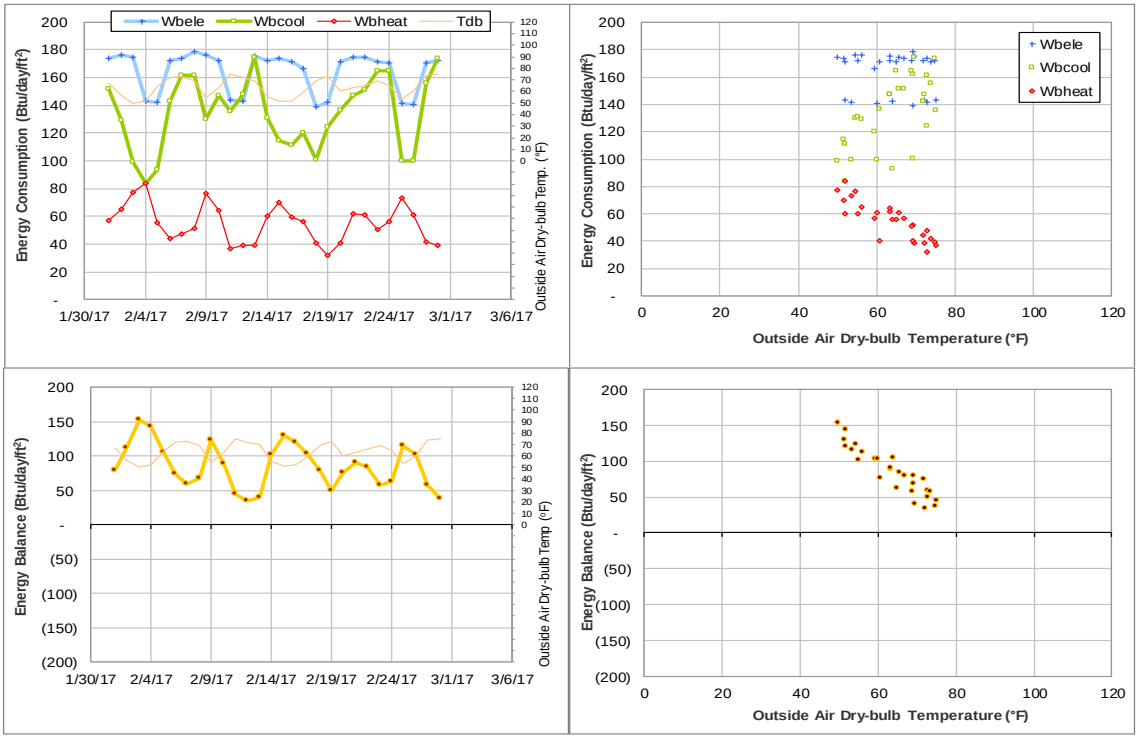



Figure IV-18 Koldus Building TAMU BLDG # 383 Energy Balance Plot during February 2017

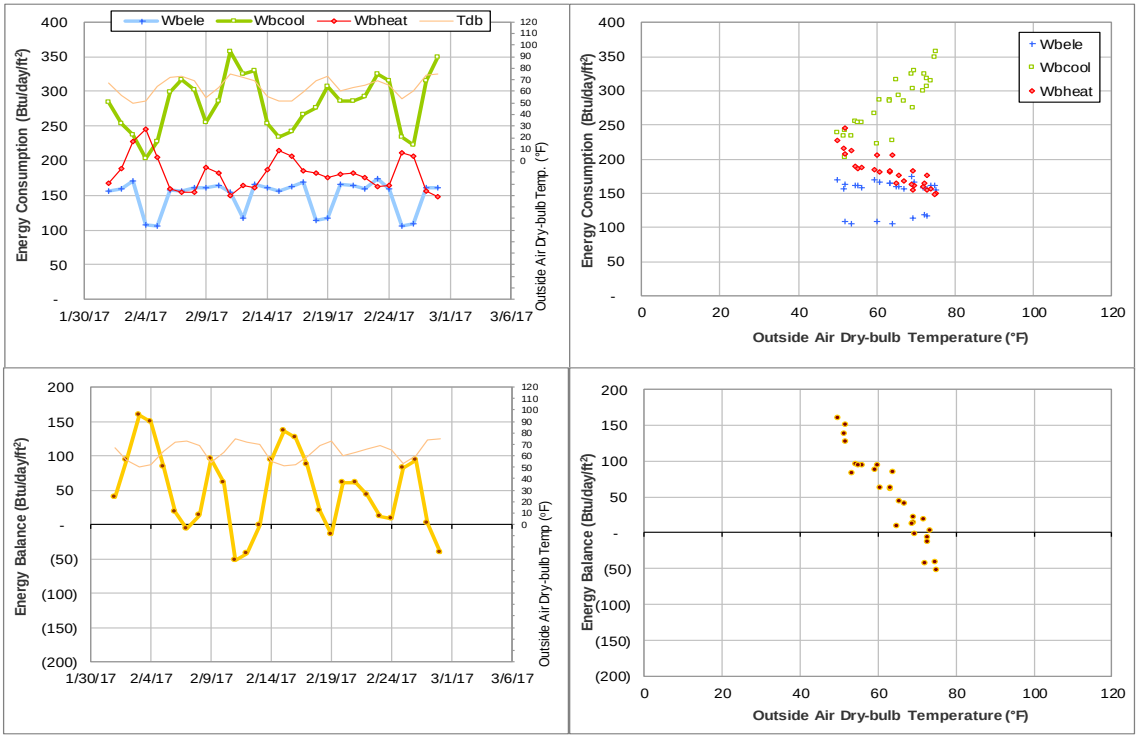



Figure IV-19 Sanders Corps of Cadets Center TAMU BLDG # 384 Energy Balance Plot during February 2017

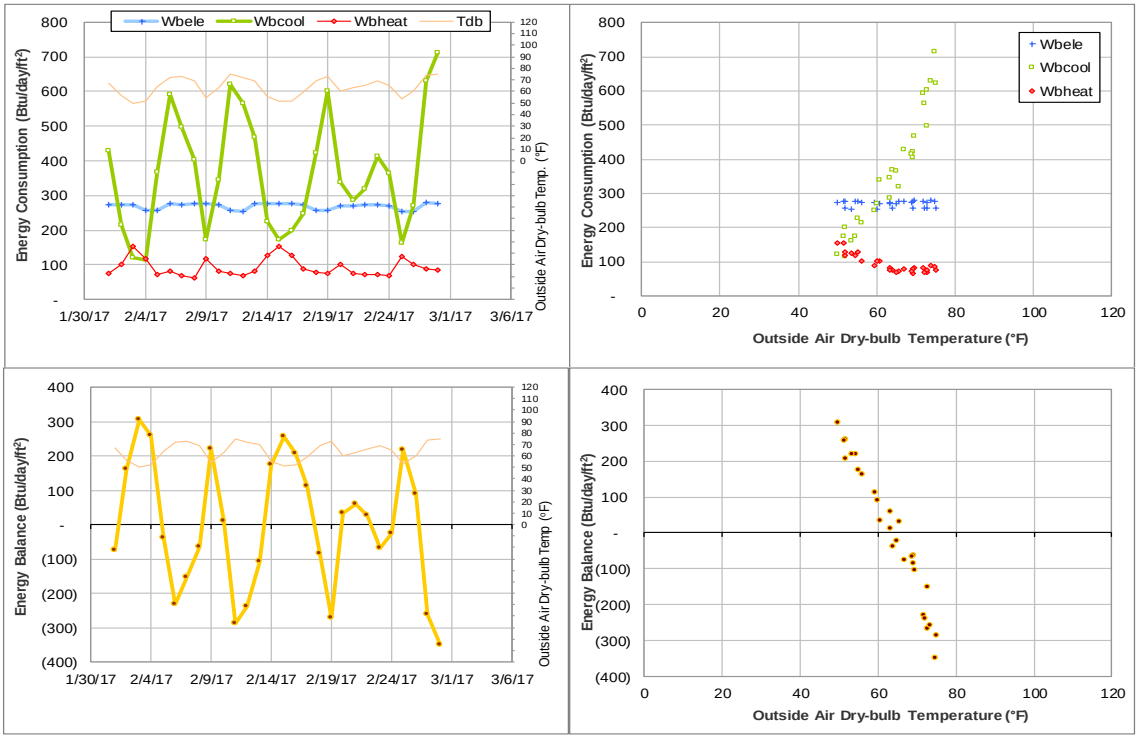



Figure IV-20 Jack E. Brown Chemical Engineering Building TAMU BLDG # 386 Energy Balance Plot during February 2017

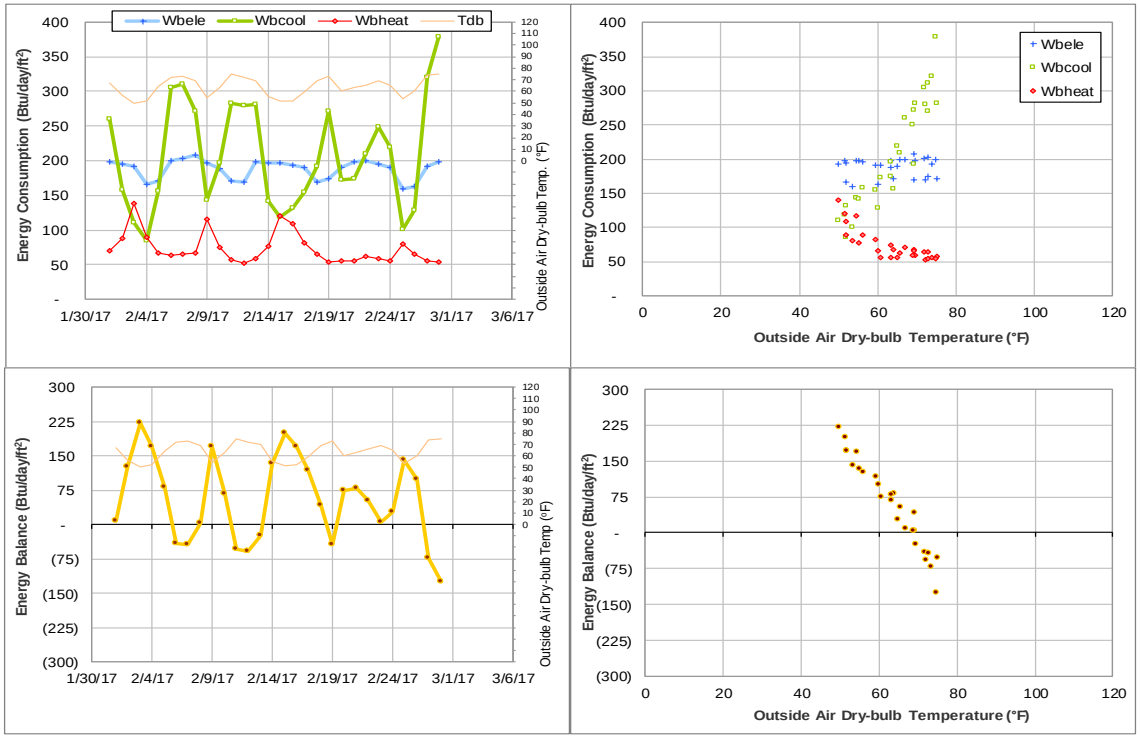



Figure IV-21 Richardson Petroleum Engineering Building TAMU BLDG # 387 Energy Balance Plot during February 2017

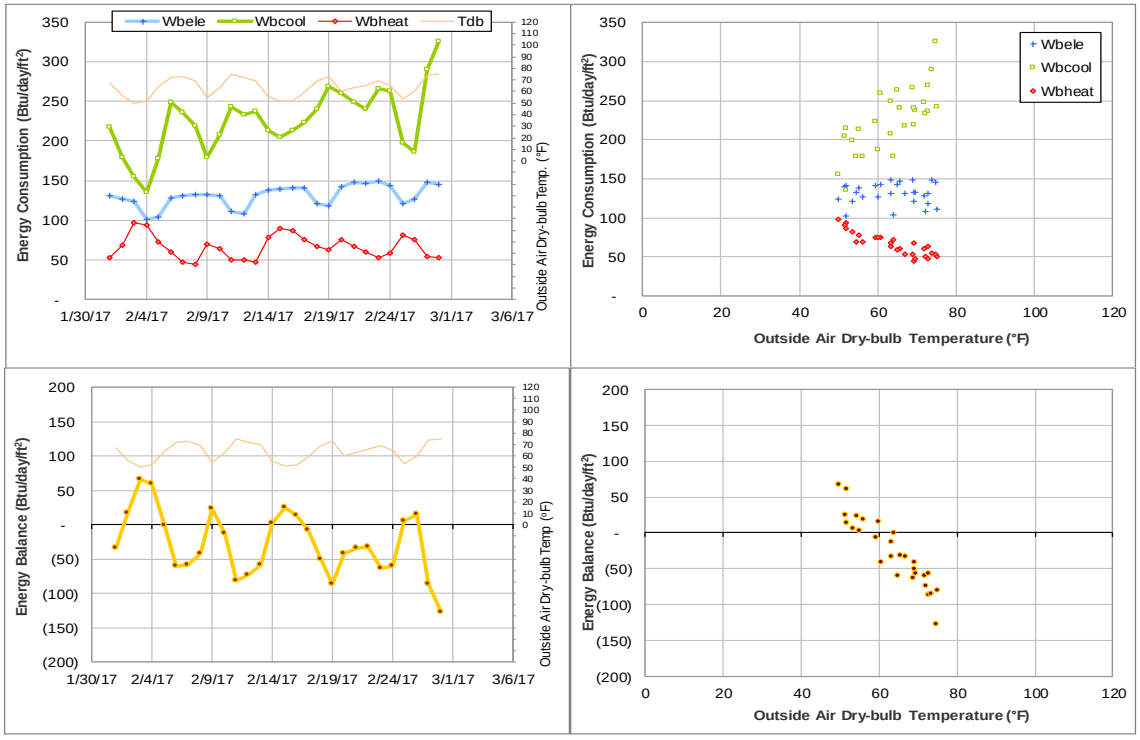



Figure IV-22 James J. Cain'51 and Mechanical Engineering Office Building TAMU BLDG # 391 Energy Balance Plot during February 2017

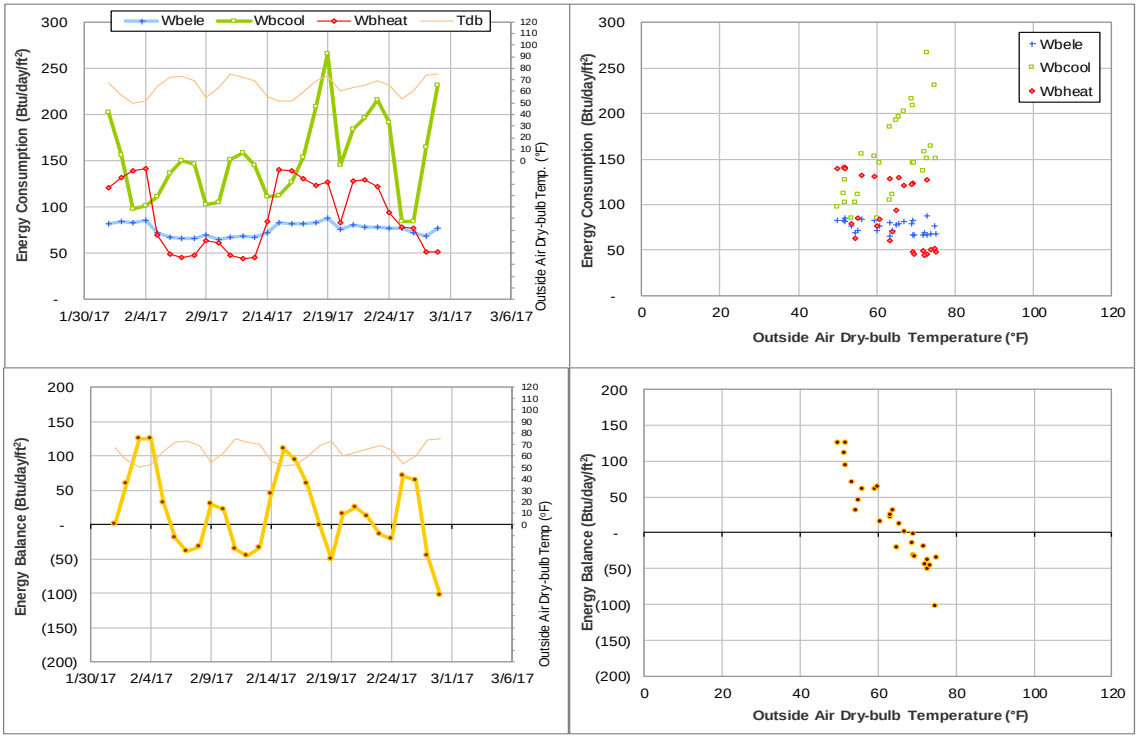



Figure IV-23 Underwood Residence Hall TAMU BLDG # 394 Energy Balance Plot during February 2017

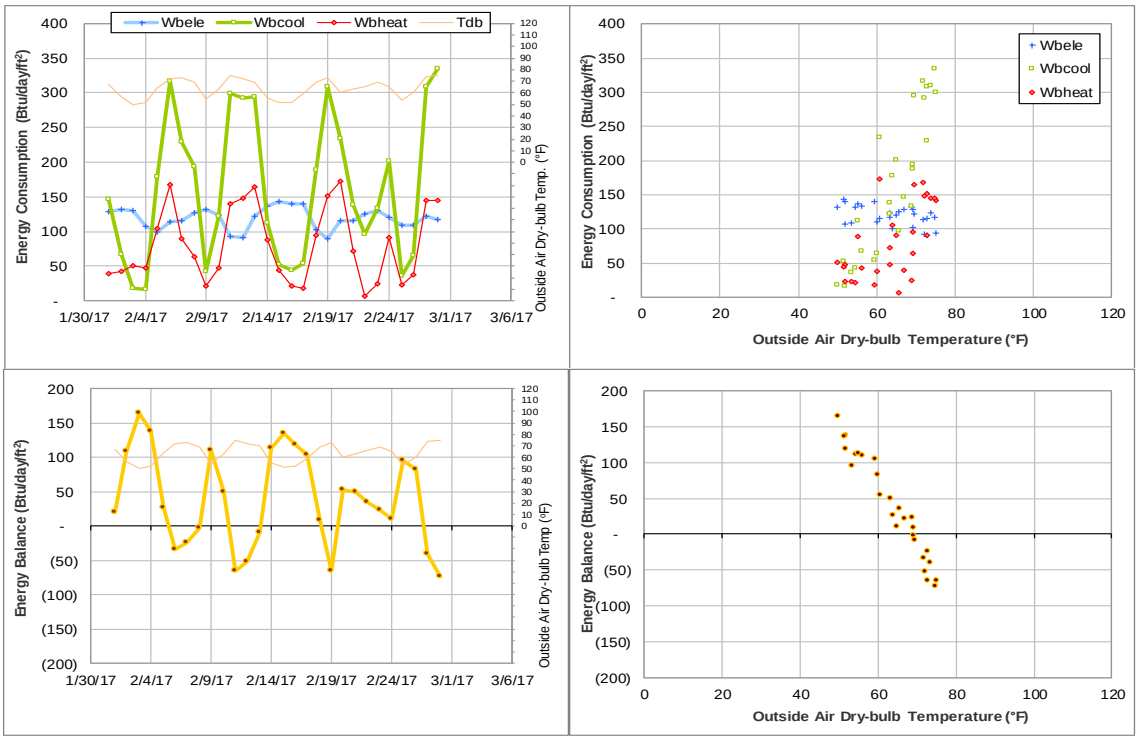



Figure IV-24 Langford Architecture Center Building A TAMU BLDG # 398 Energy Balance Plot during February 2017

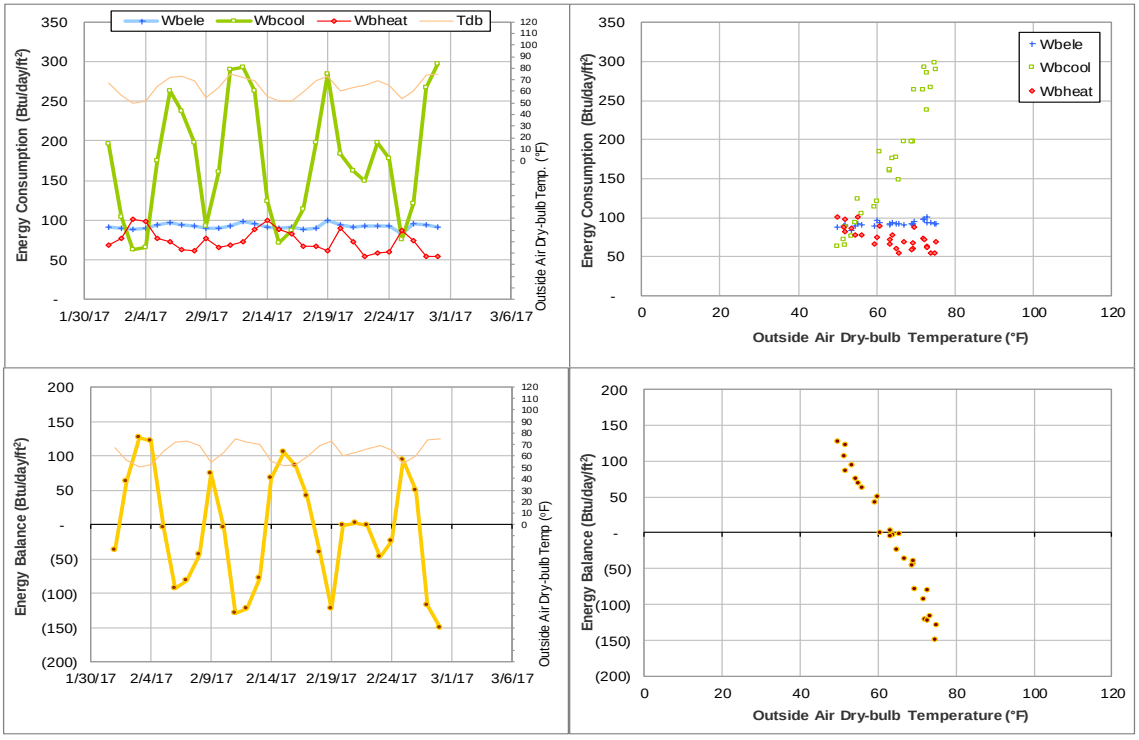



Figure IV-25 Spence Hall, Briggs Hall, and Ash II LLC TAMU BLDG # 400, 402, 1405 Energy Balance Plot during February 2017

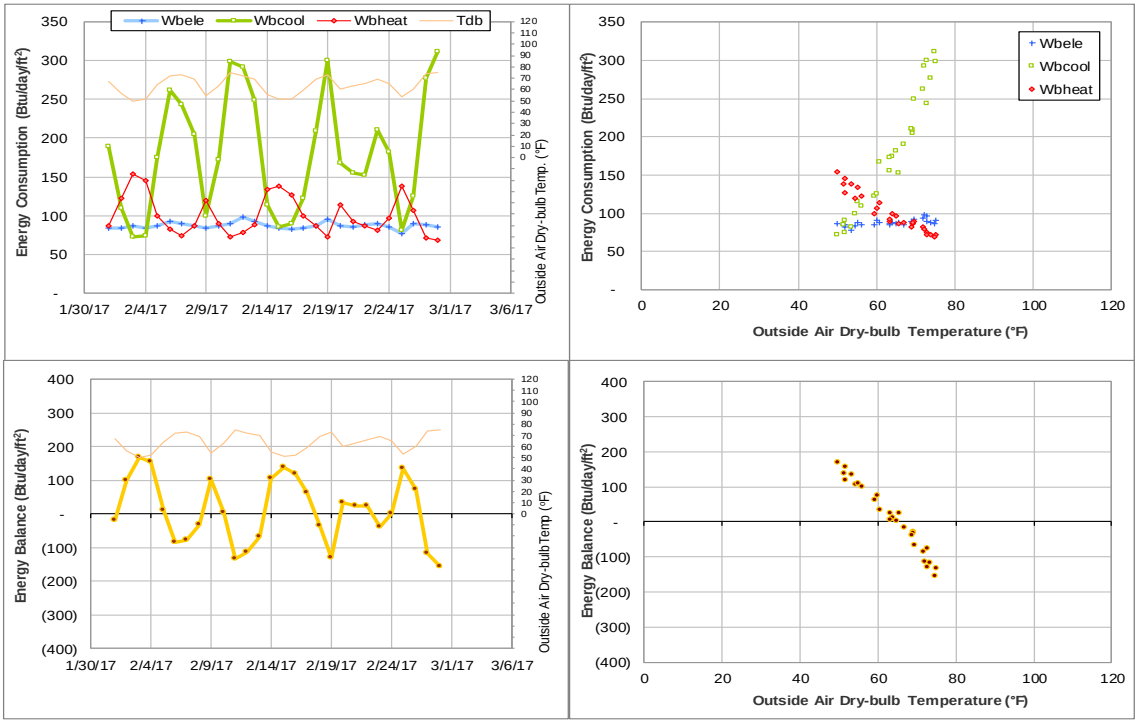



Figure IV-26 Spence Hall Dorm 1 TAMU BLDG # 400 Energy Balance Plot during February 2017

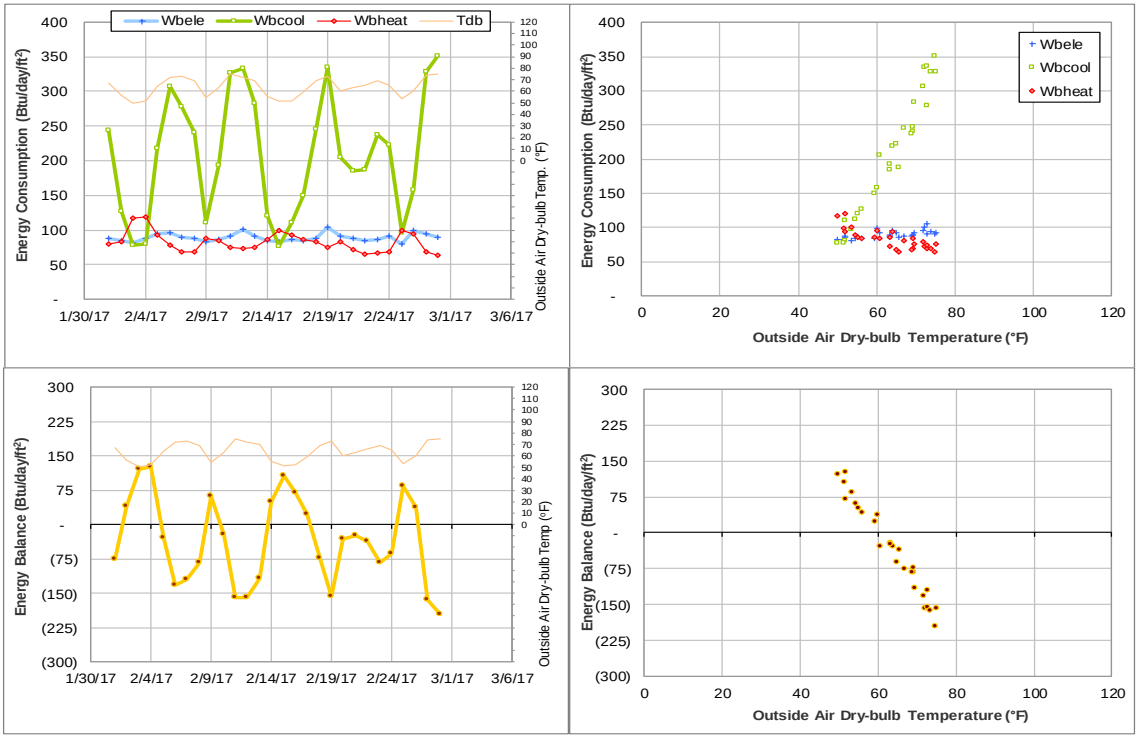



Figure IV-27 Briggs Hall Dorm 3 TAMU BLDG # 402 Energy Balance Plot during February 2017

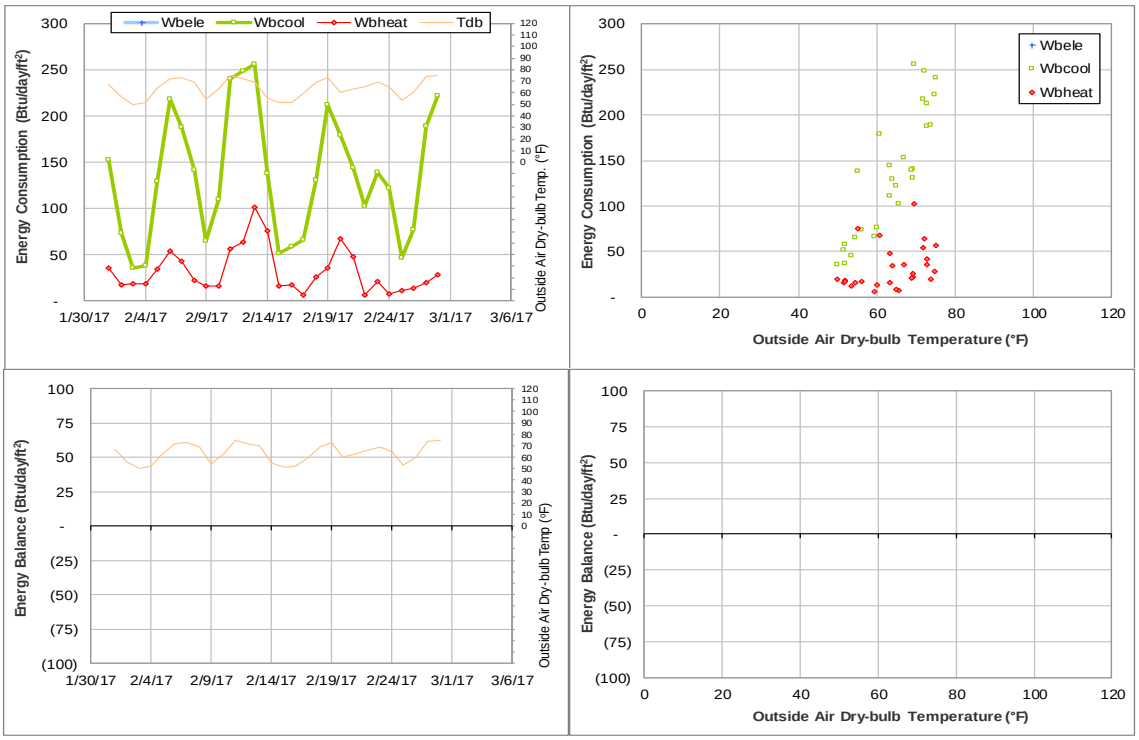



Figure IV-28 Ash II LLC TAMU BLDG # 1405 Energy Balance Plot during February 2017

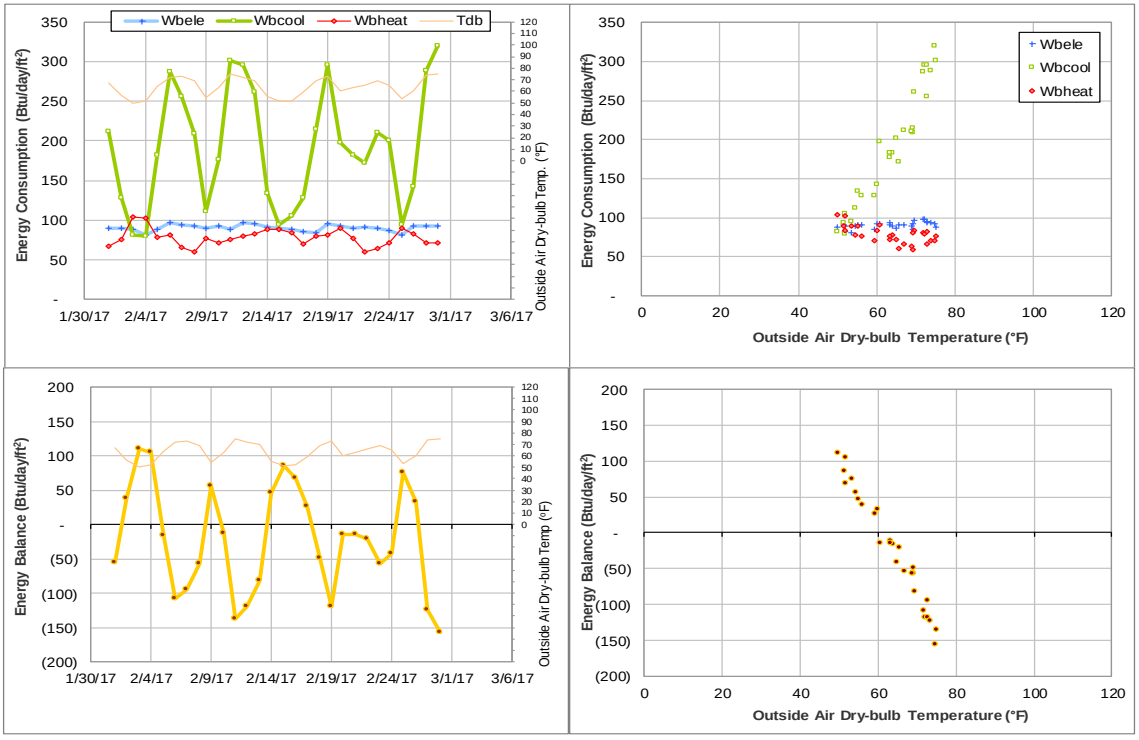



Figure IV-29 Kiest Hall, Fountain Hall, and Plank LLC TAMU BLDG # 401, 403, 1404 Energy Balance Plot during February 2017

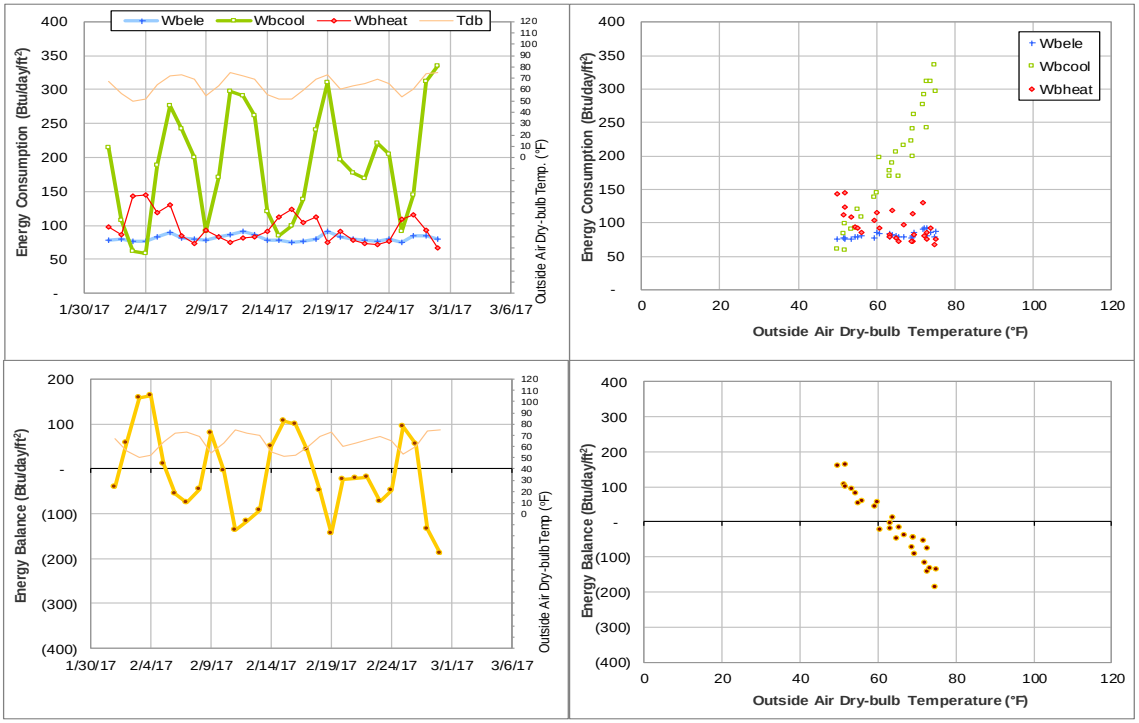



Figure IV-30 Kiest Hall Dorm 2 TAMU BLDG # 401 Energy Balance Plot during February 2017

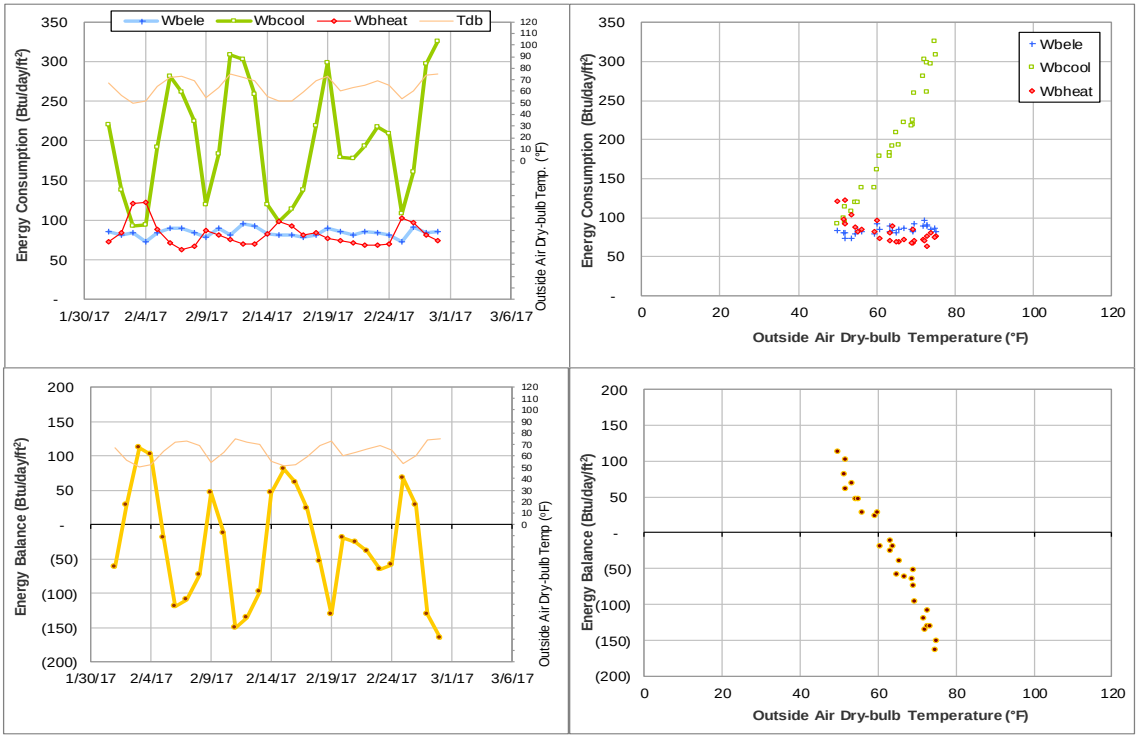



Figure IV-31 Fountain Hall Dorm 4 TAMU BLDG # 403 Energy Balance Plot during February 2017

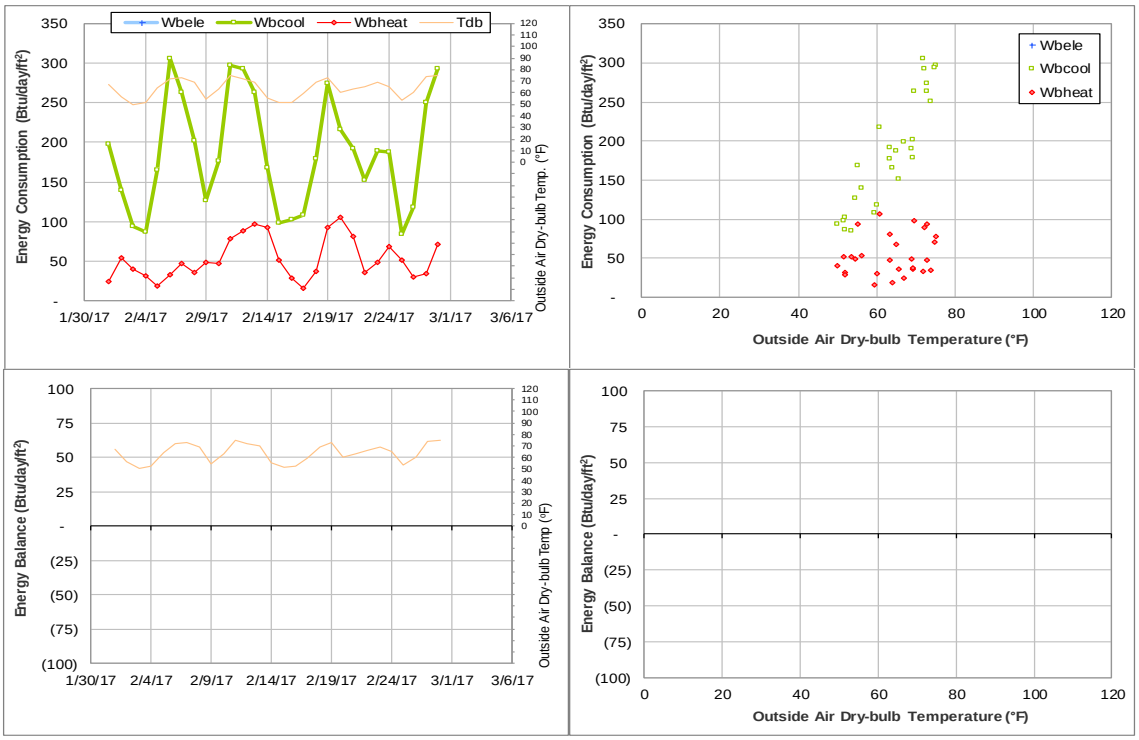



Figure IV-32 Plank LLC TAMU BLDG # 1404 Energy Balance Plot during February 2017

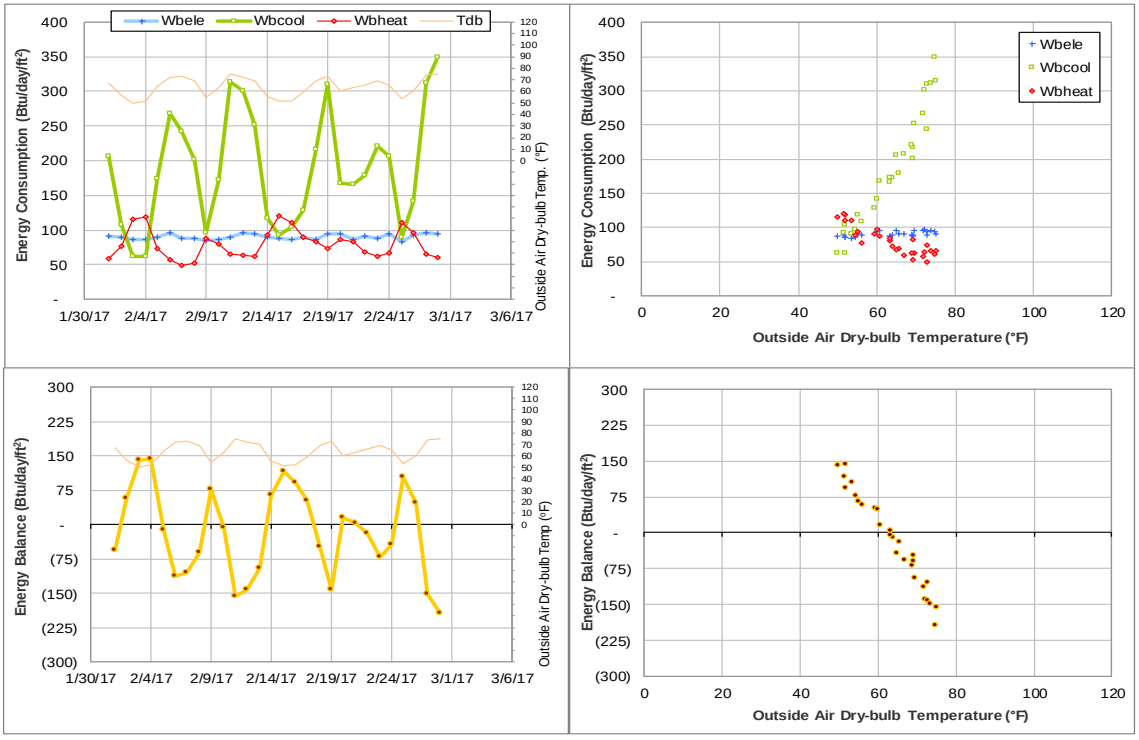



Figure IV-33 Gainer Hall, Leonard Hall and Ash LLC TAMU BLDG # 404, 406, 1403 Energy Balance Plot during February 2017

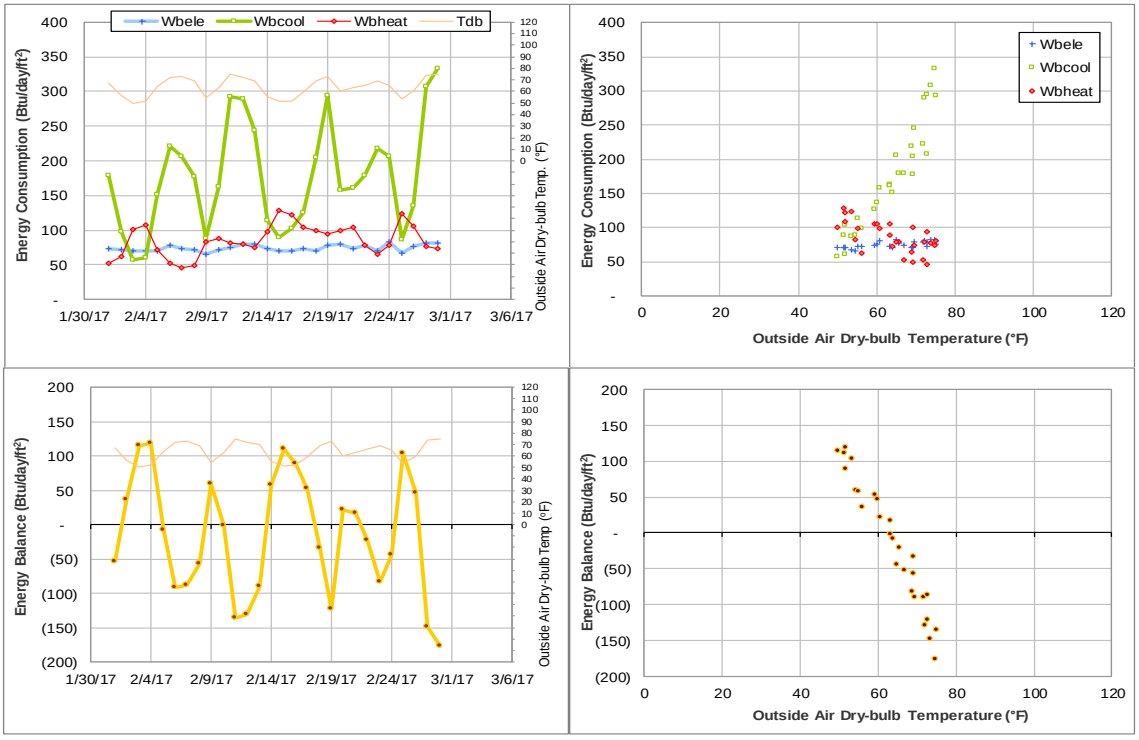



Figure IV-34 Gainer Hall Dorm 5 TAMU BLDG # 404 Energy Balance Plot during February 2017

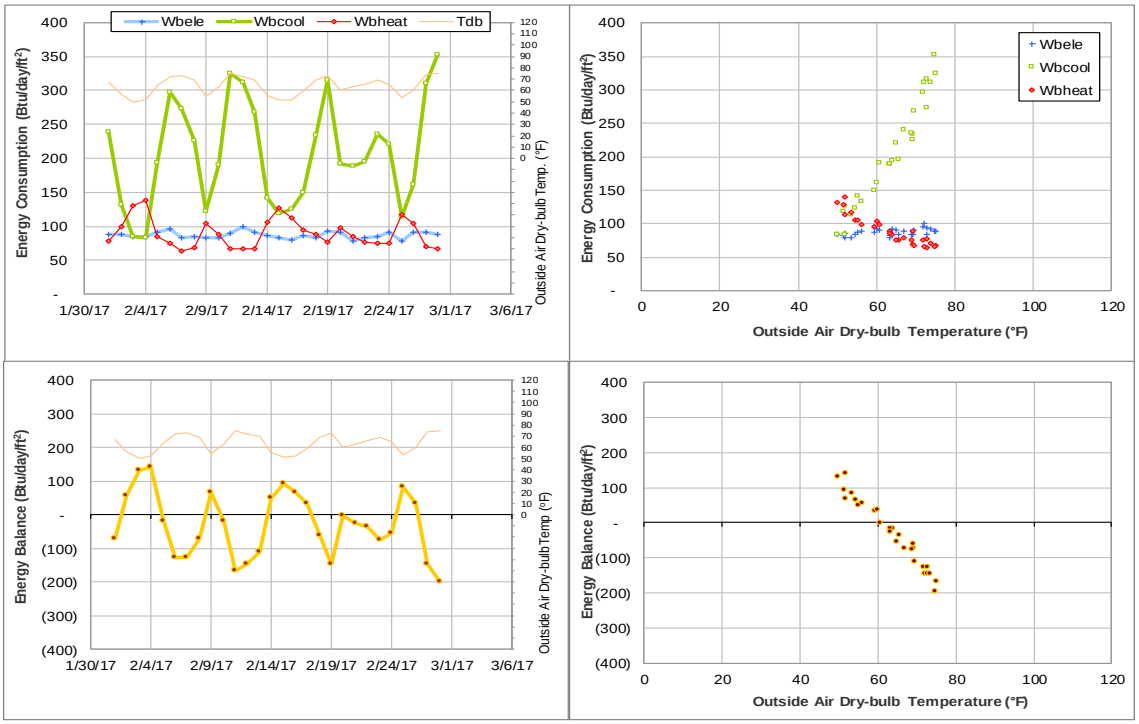



Figure IV-35 Leonard Hall - Dorm 7 TAMU BLDG # 406 Energy Balance Plot during February 2017

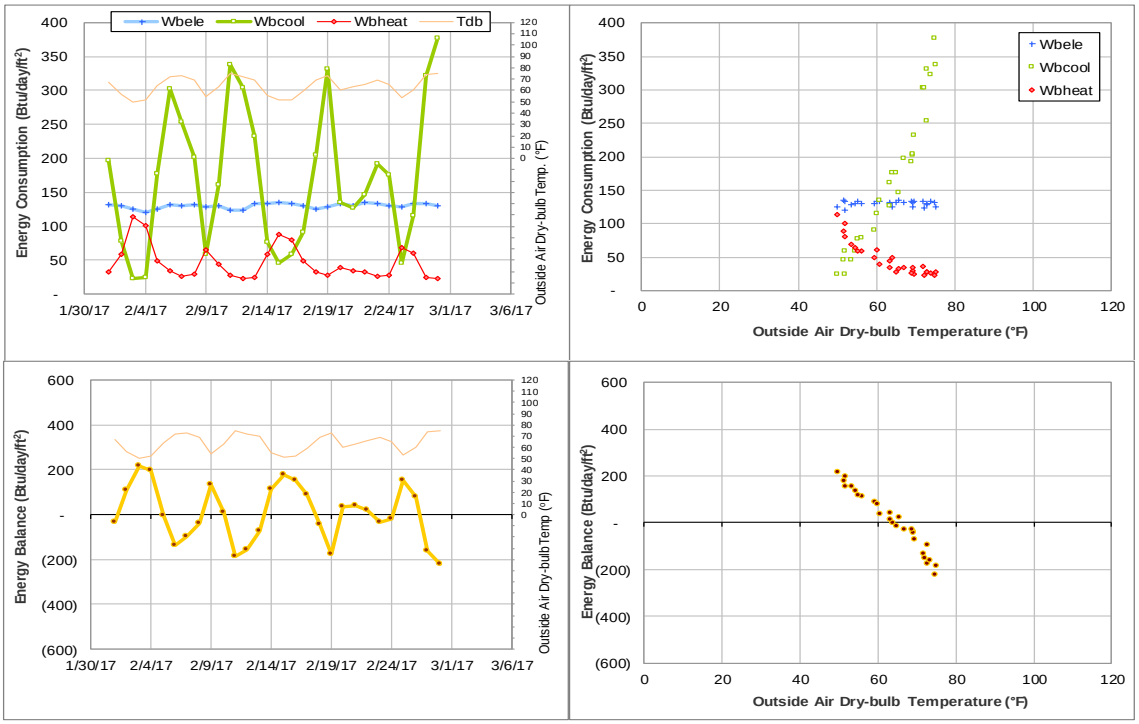



Figure IV-36 H. Grady Ash, Jr. '58 Leadership Learning Center TAMU BLDG # 1403 Energy Balance Plot during February 2017

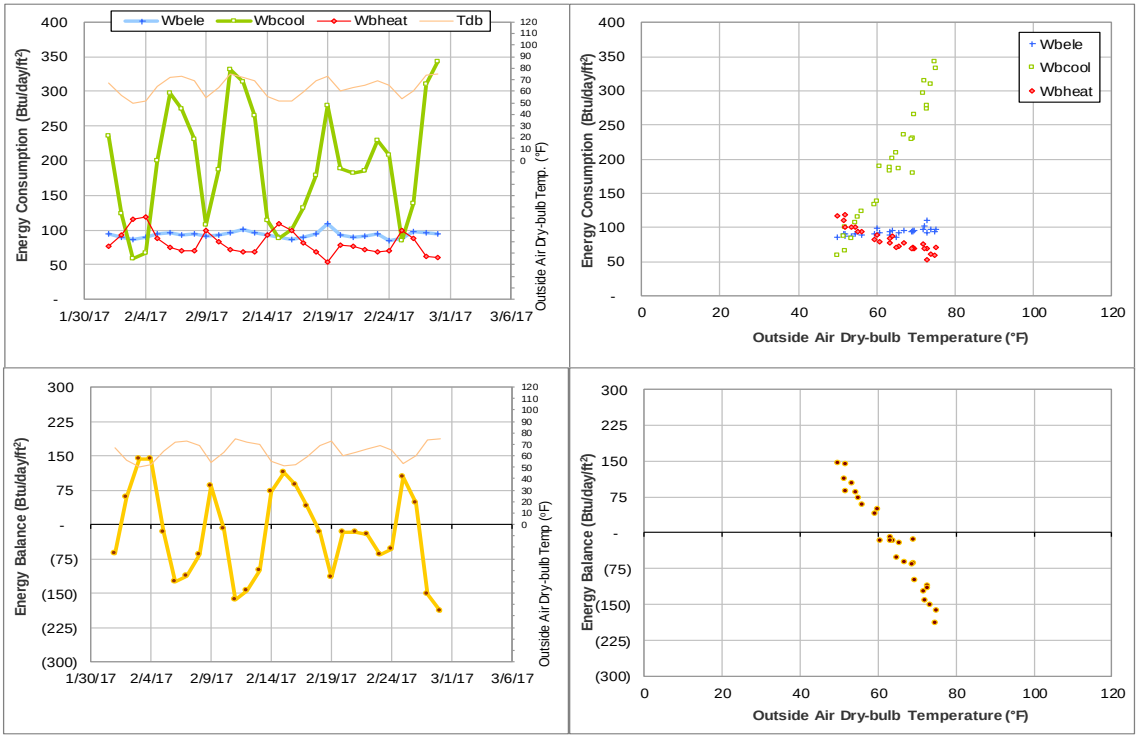



Figure IV-37 Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center TAMU BLDG # 405, 407, 1402 Energy Balance Plot during February 2017

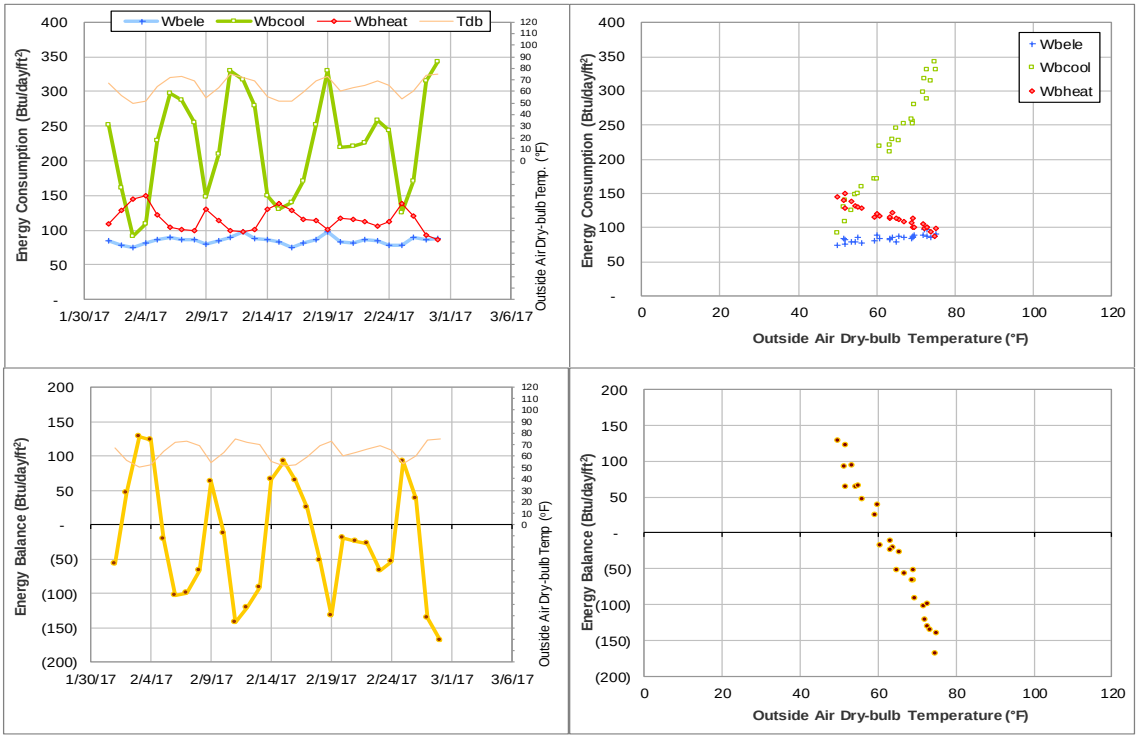



Figure IV-38 Lacy Hall - Dorm 6 TAMU BLDG # 405 Energy Balance Plot during February 2017

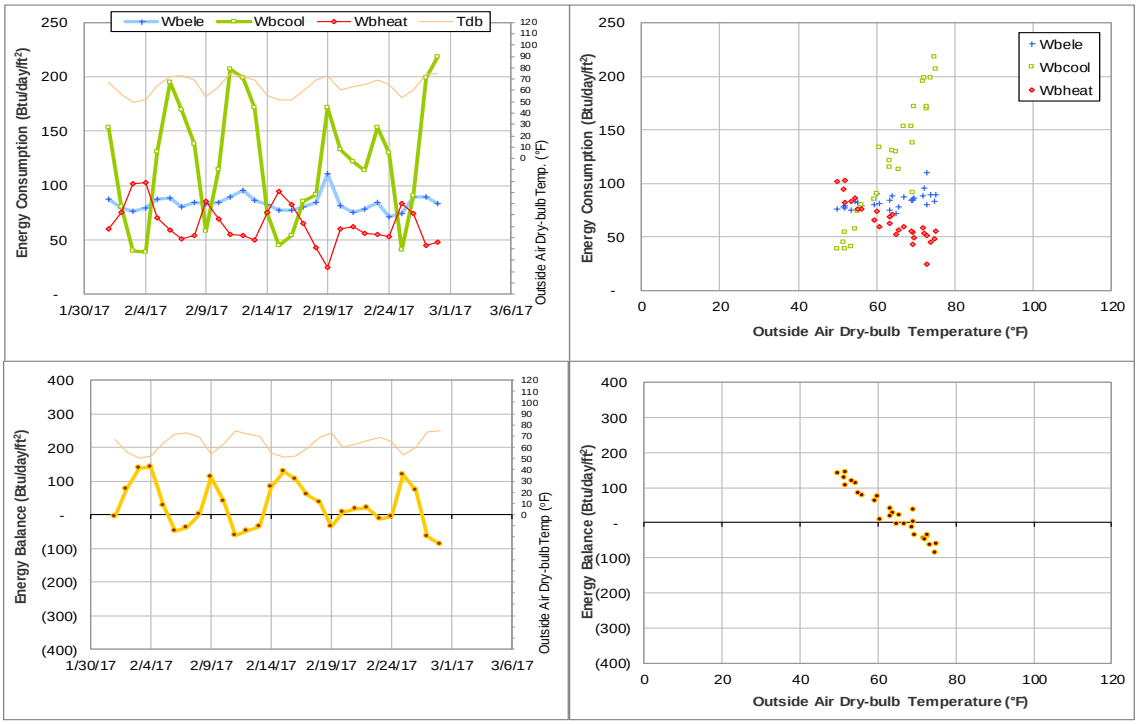



Figure IV-39 Harrell Hall - Dorm 8 TAMU BLDG # 407 Energy Balance Plot during February 2017

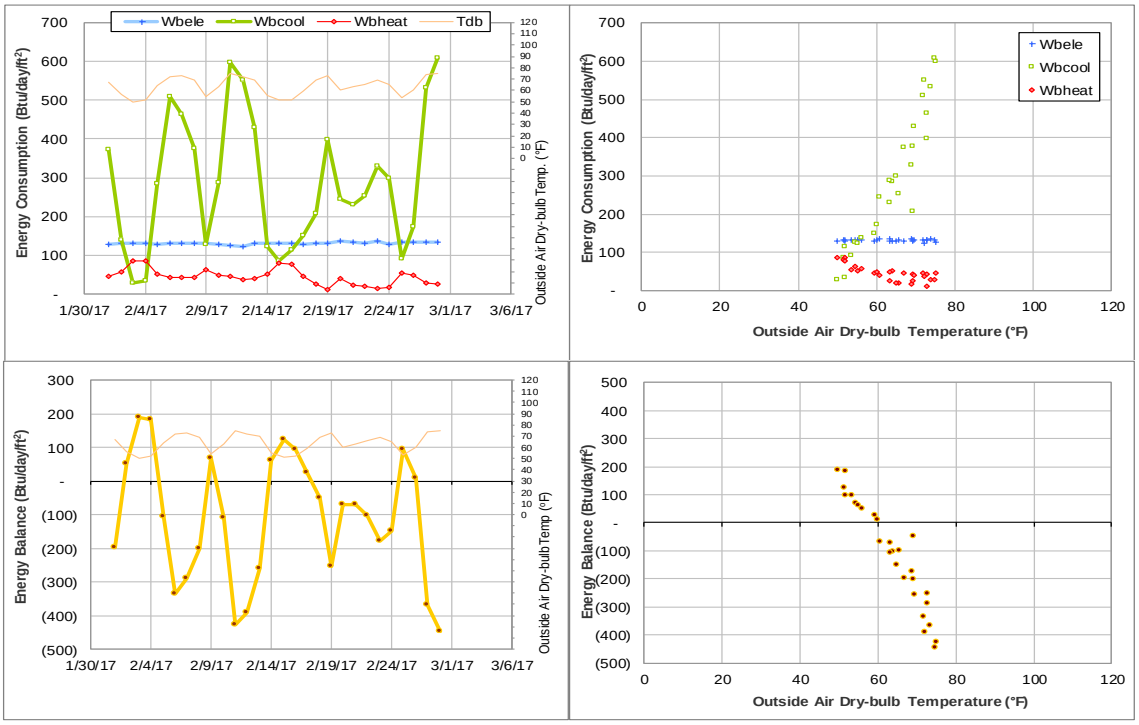



Figure IV-40 Buzbee Leadership Learning Center TAMU BLDG # 1402 Energy Balance Plot during February 2017

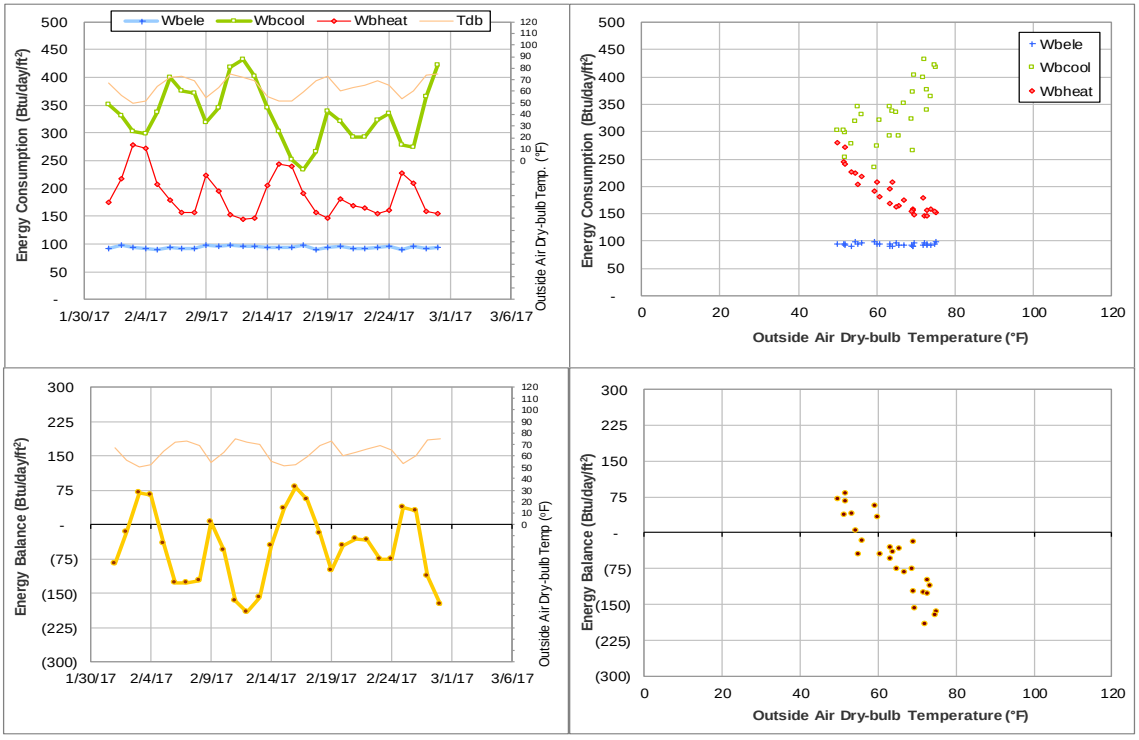



Figure IV-41 Moses Residence Hall TAMU BLDG # 412 Energy Balance Plot during February 2017

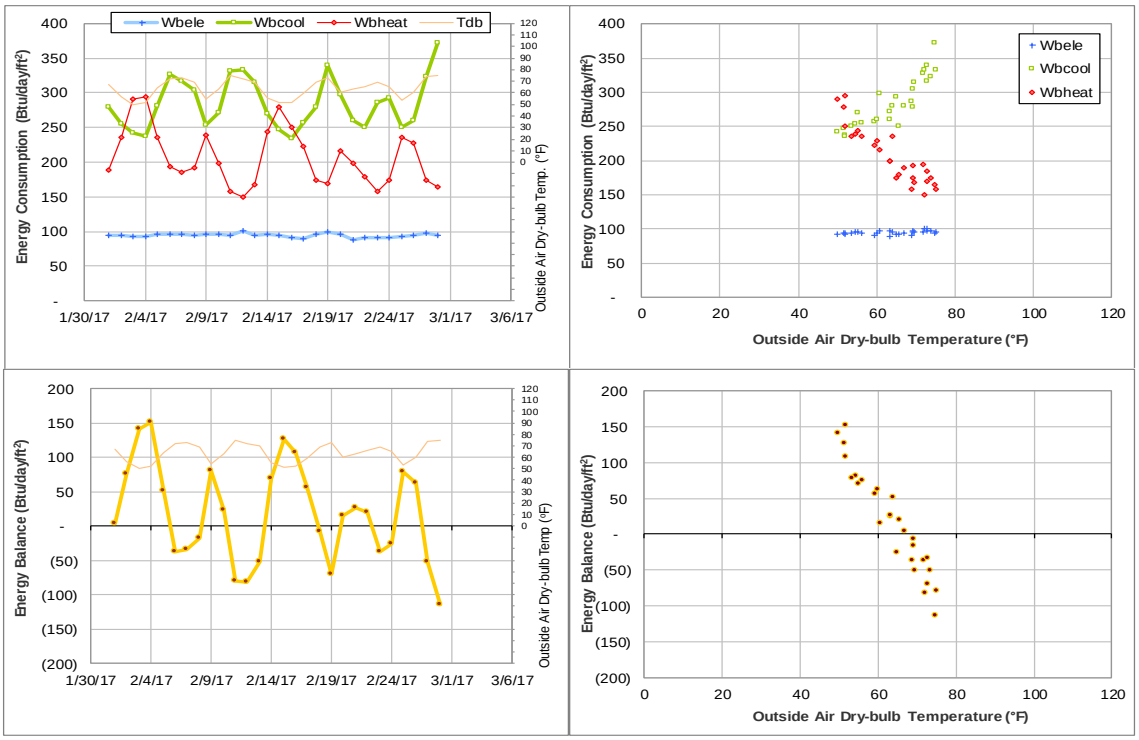



Figure IV-42 Davis-Gary Residence Hall TAMU BLDG # 415 Energy Balance Plot during February 2017

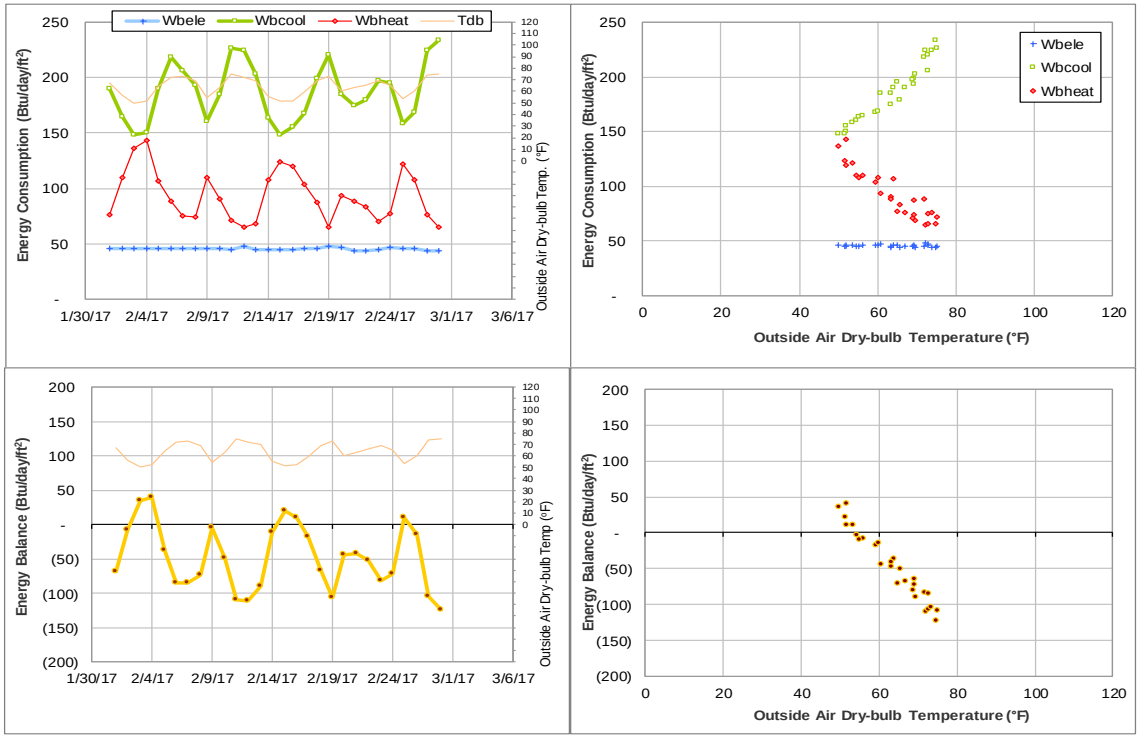



Figure IV-43 Legett Residence Hall TAMU BLDG # 419 Energy Balance Plot during February 2017

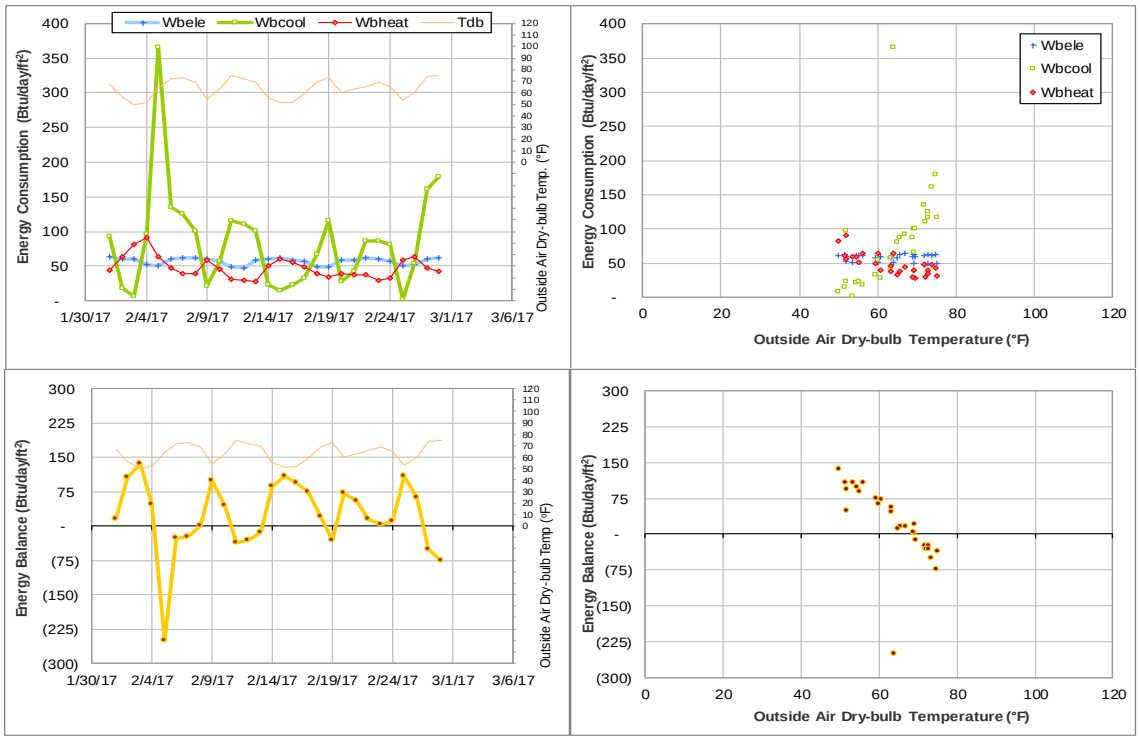



Figure IV-44 Milner Hall TAMU BLDG # 420 Energy Balance Plot during February 2017

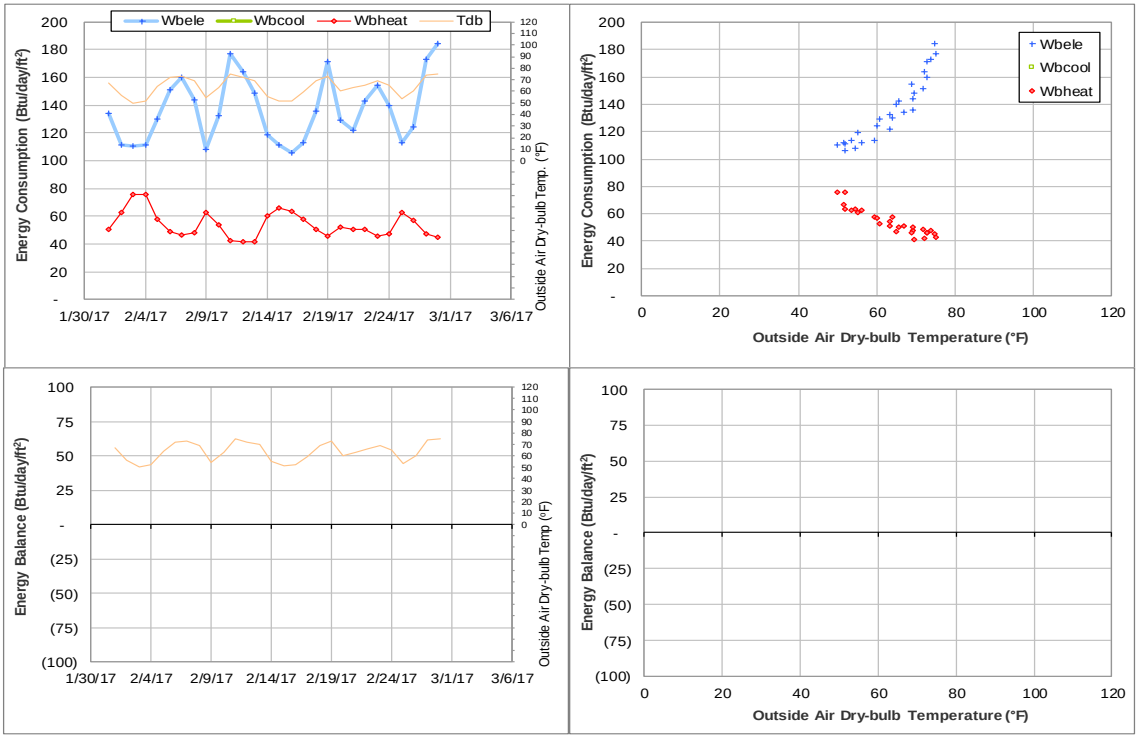



Figure IV-45 Walton Residence Hall TAMU BLDG # 422 Energy Balance Plot during February 2017

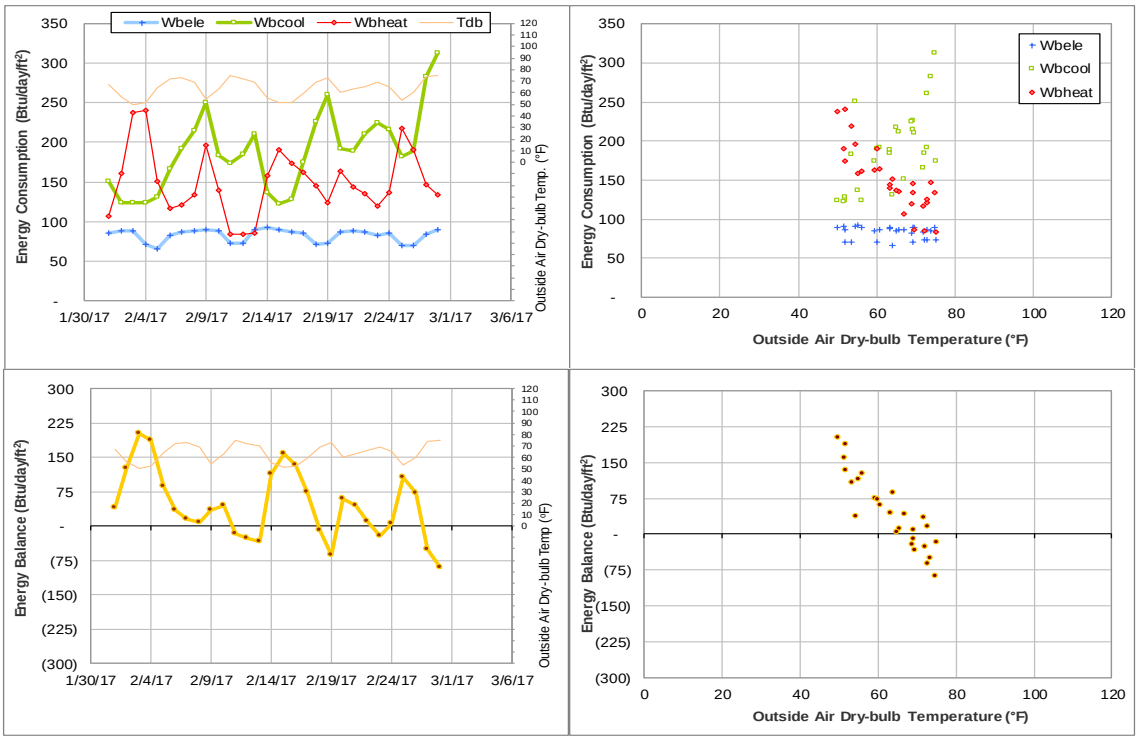



Figure IV-46 Hotard Hall TAMU BLDG # 424 Energy Balance Plot during February 2017

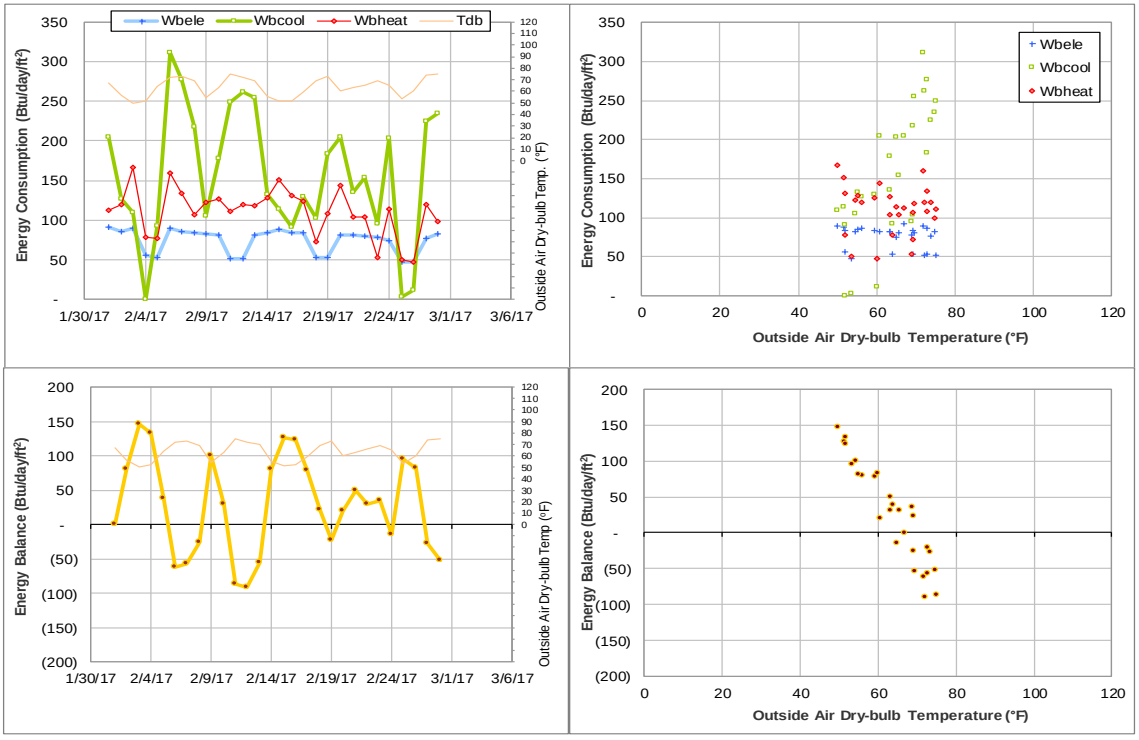



Figure IV-47 Henderson Hall TAMU BLDG # 425 Energy Balance Plot during February 2017

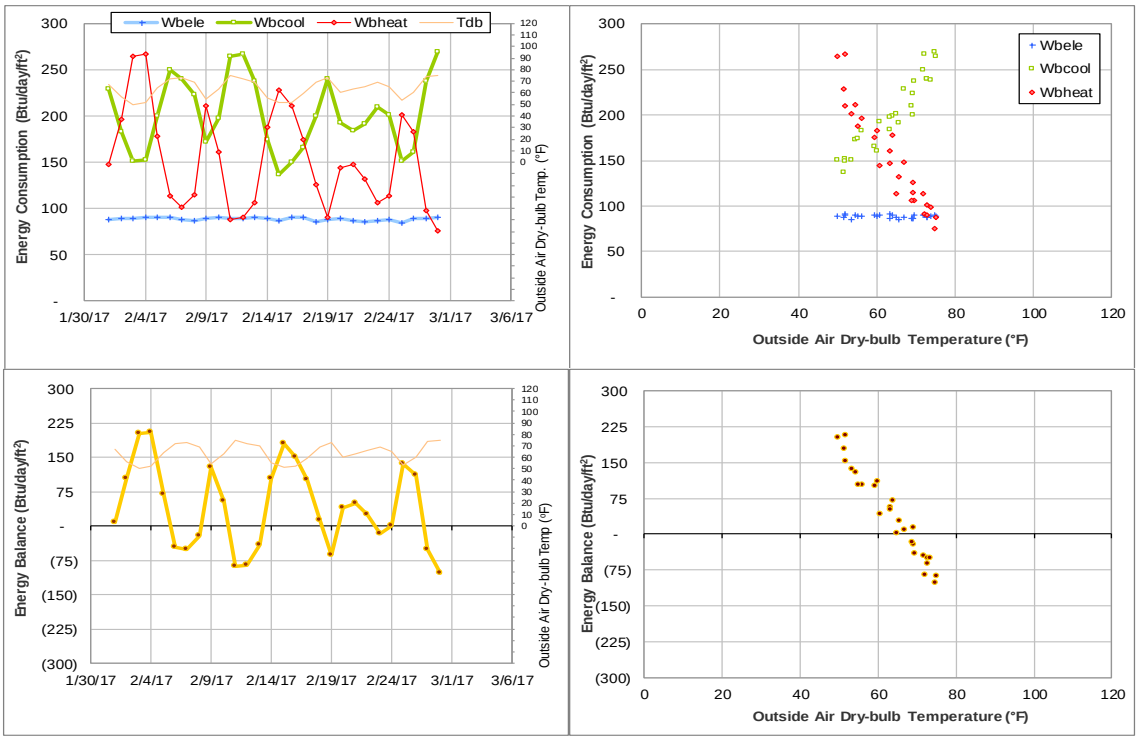



Figure IV-48 FHK Complex TAMU BLDG # 426 Energy Balance Plot during February 2017

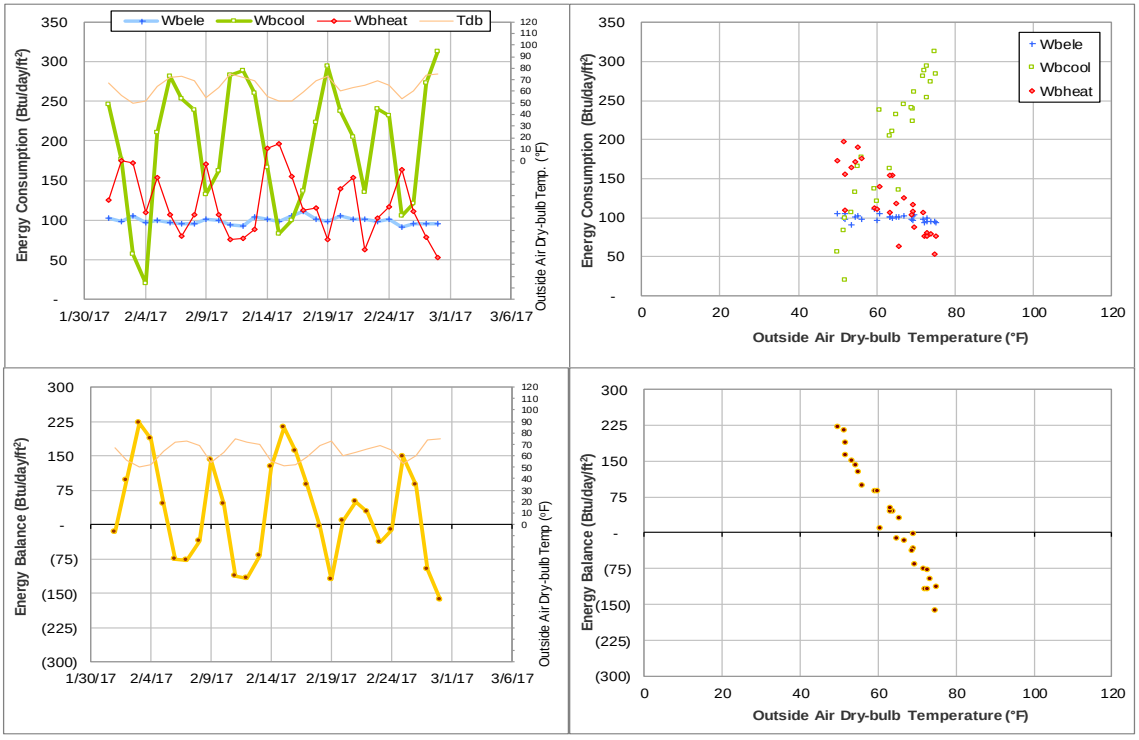



Figure IV-49 Schumacher Residence Hall TAMU BLDG # 430 Energy Balance Plot during February 2017

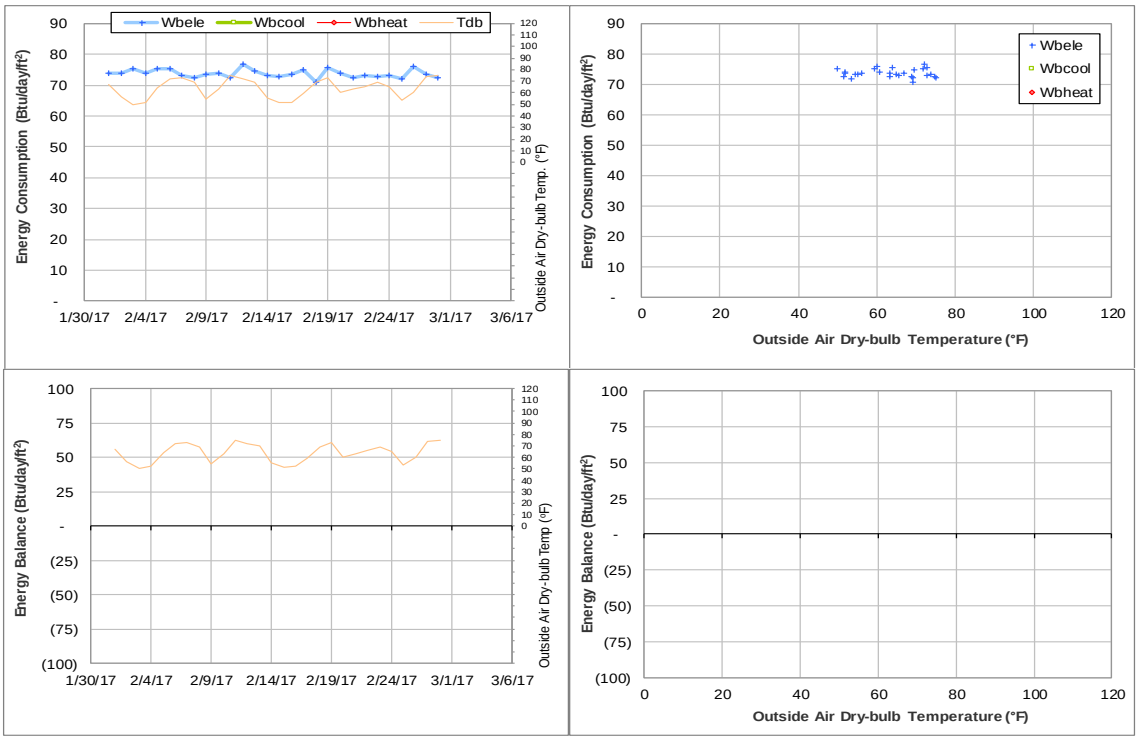



Figure IV-50 Mosher Commons Krueger Dunn Aston TAMU BLDG # 433, 440, 441, 442, 447 Energy Balance Plot during February 2017

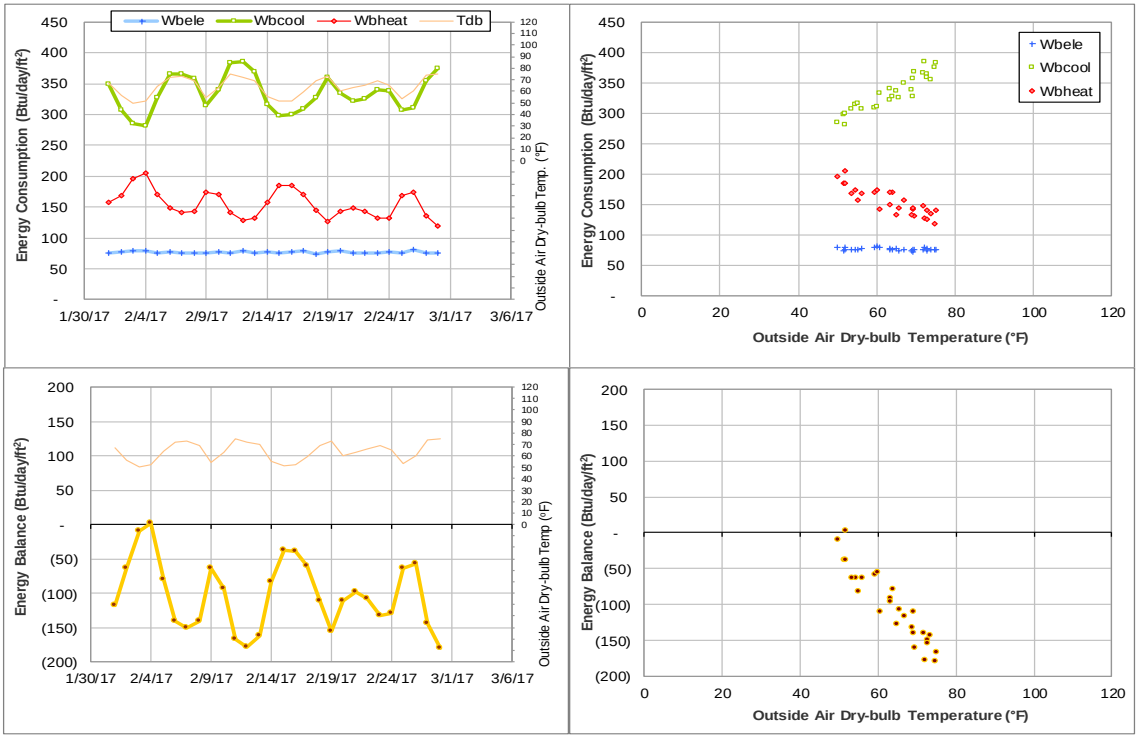



Figure IV-51 Mosher Residence Hall TAMU BLDG # 433 Energy Balance Plot during February 2017

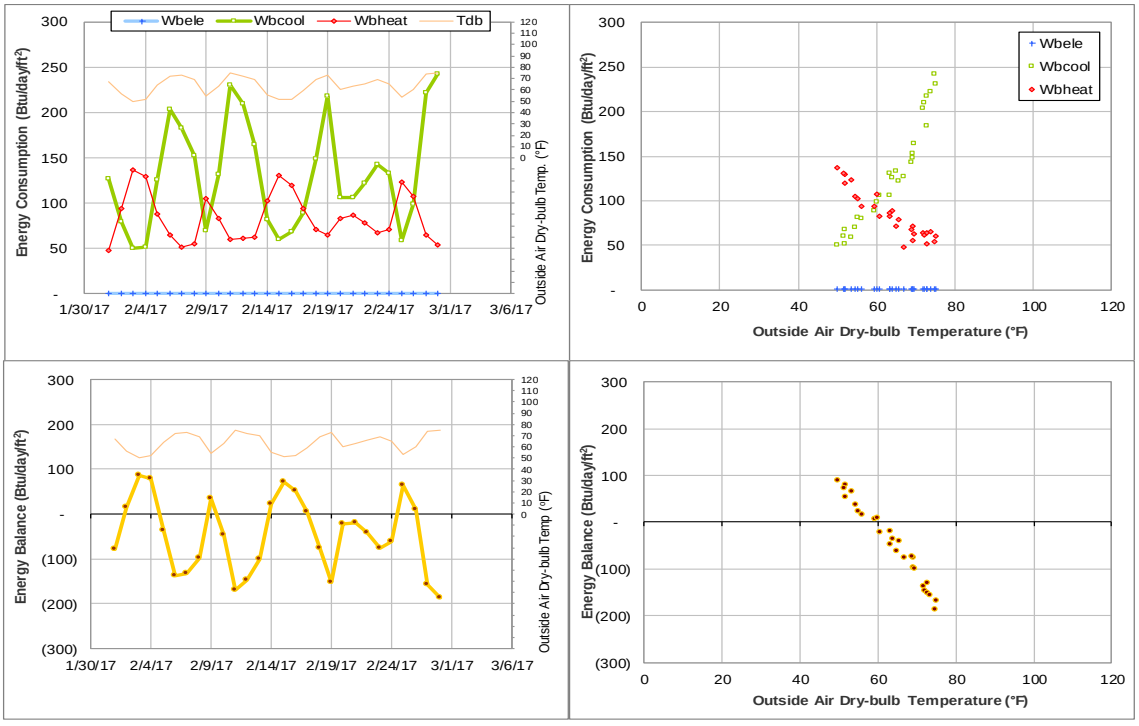



Figure IV-52 Commons Hall TAMU BLDG # 440 Energy Balance Plot during February 2017

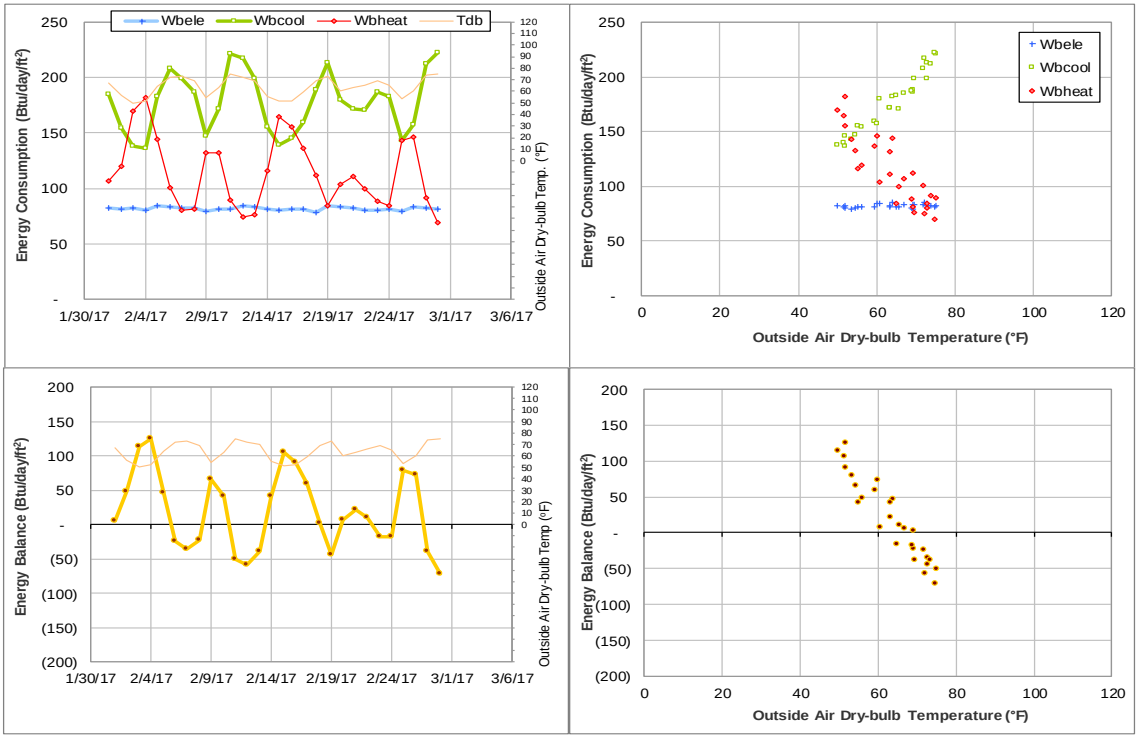



Figure IV-53 Krueger Residence Hall TAMU BLDG # 441 Energy Balance Plot during February 2017

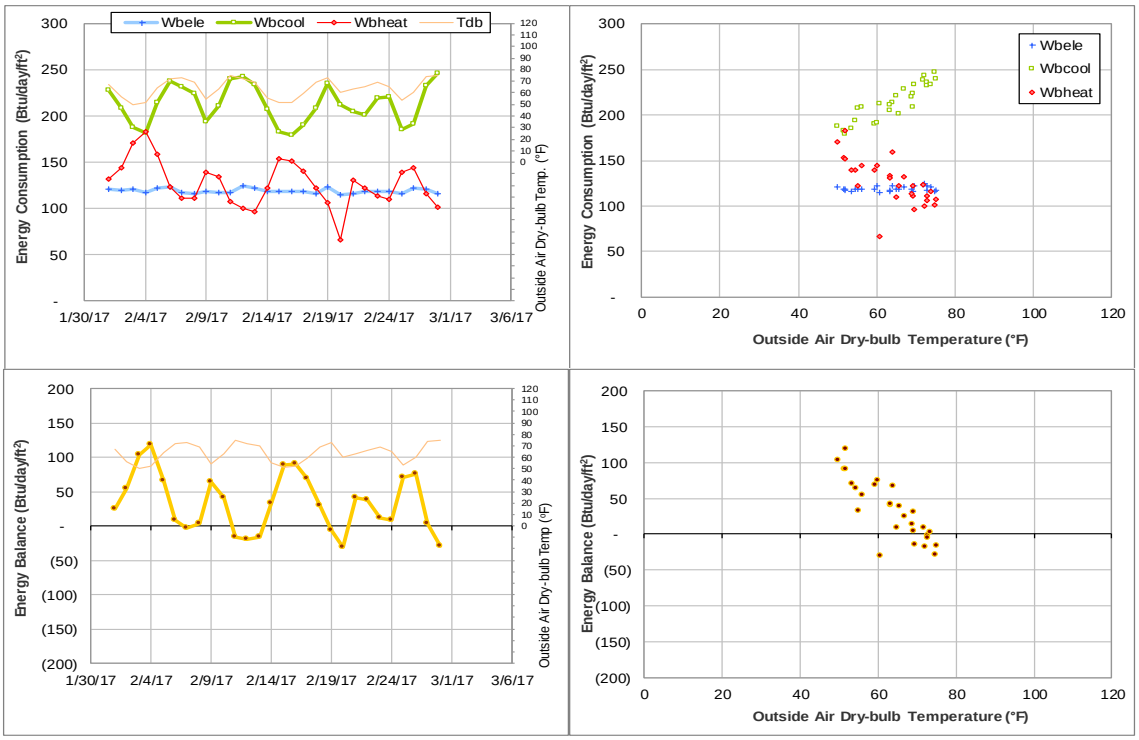



Figure IV-54 Dunn Residence Hall TAMU BLDG # 442 Energy Balance Plot during February 2017

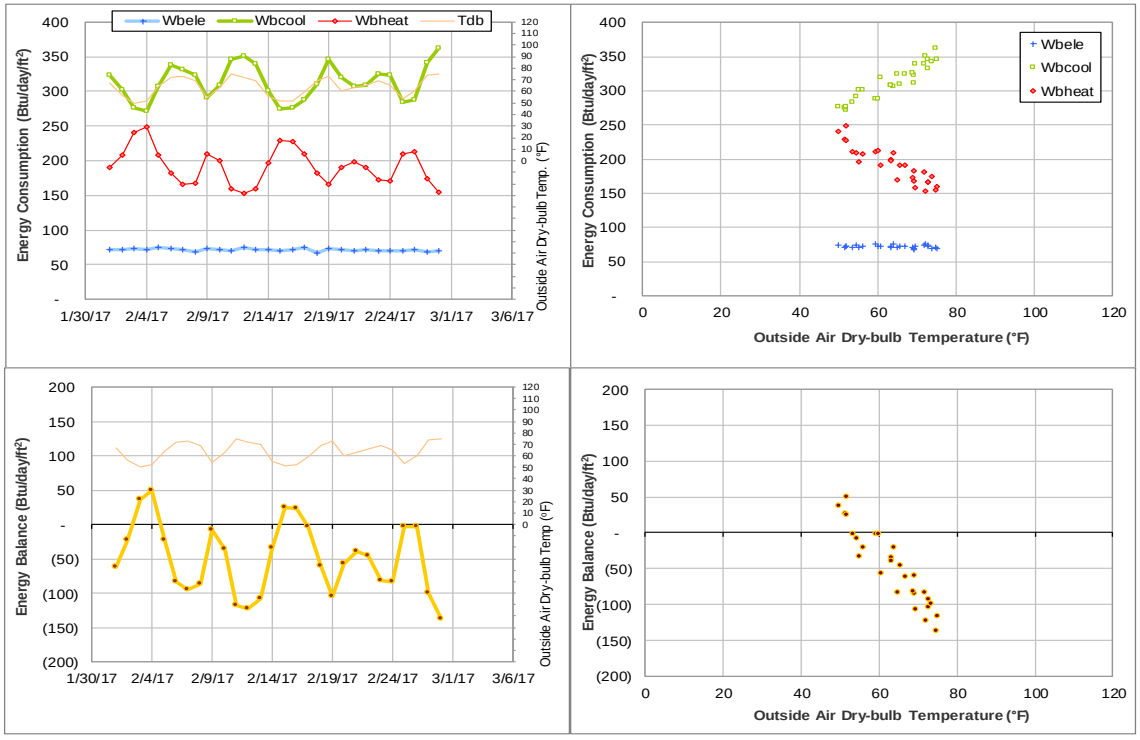



Figure IV-55 Aston Residence Hall TAMU BLDG # 447 Energy Balance Plot during February 2017

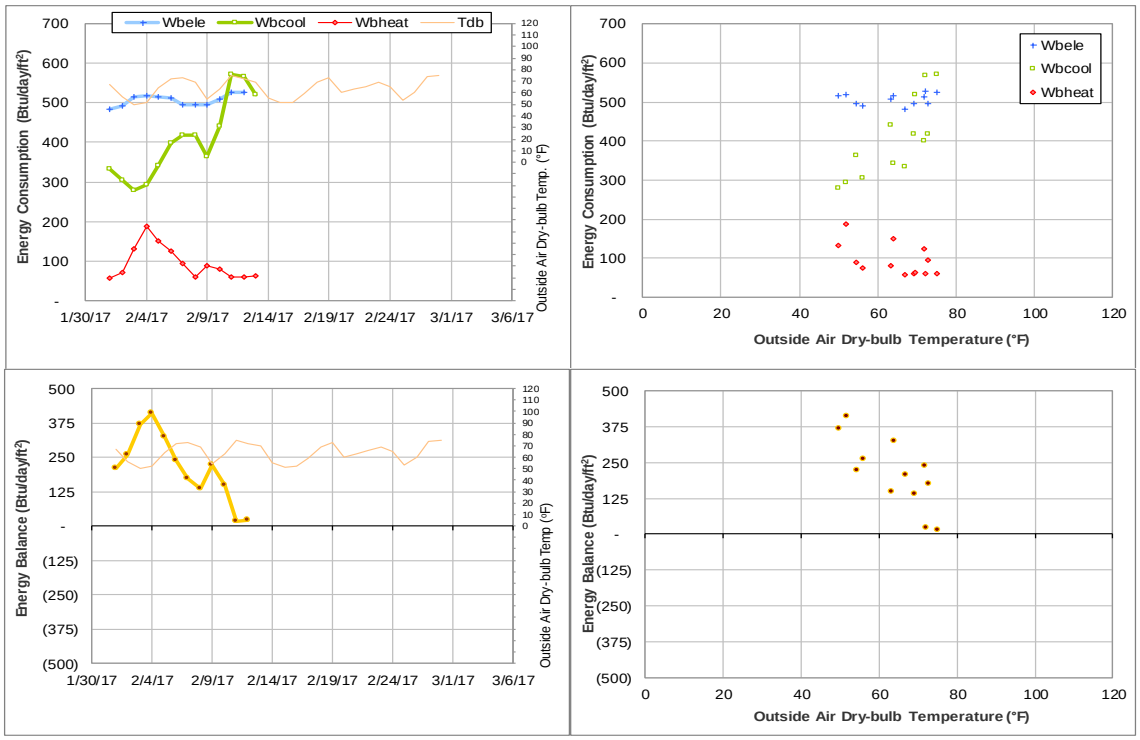



Figure IV-56 Luedecke Building (Cyclotron) TAMU BLDG # 434 Energy Balance Plot during February 2017

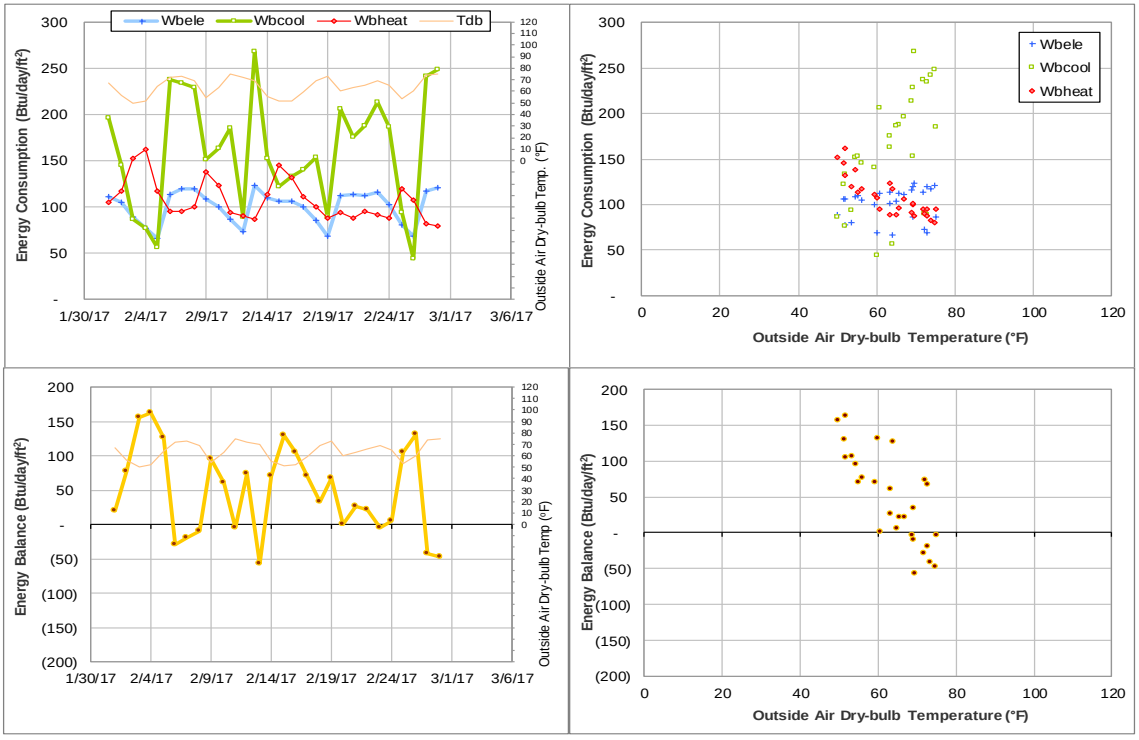



Figure IV-57 Harrington Education Center Office Tower TAMU BLDG # 435 Energy Balance Plot during February 2017

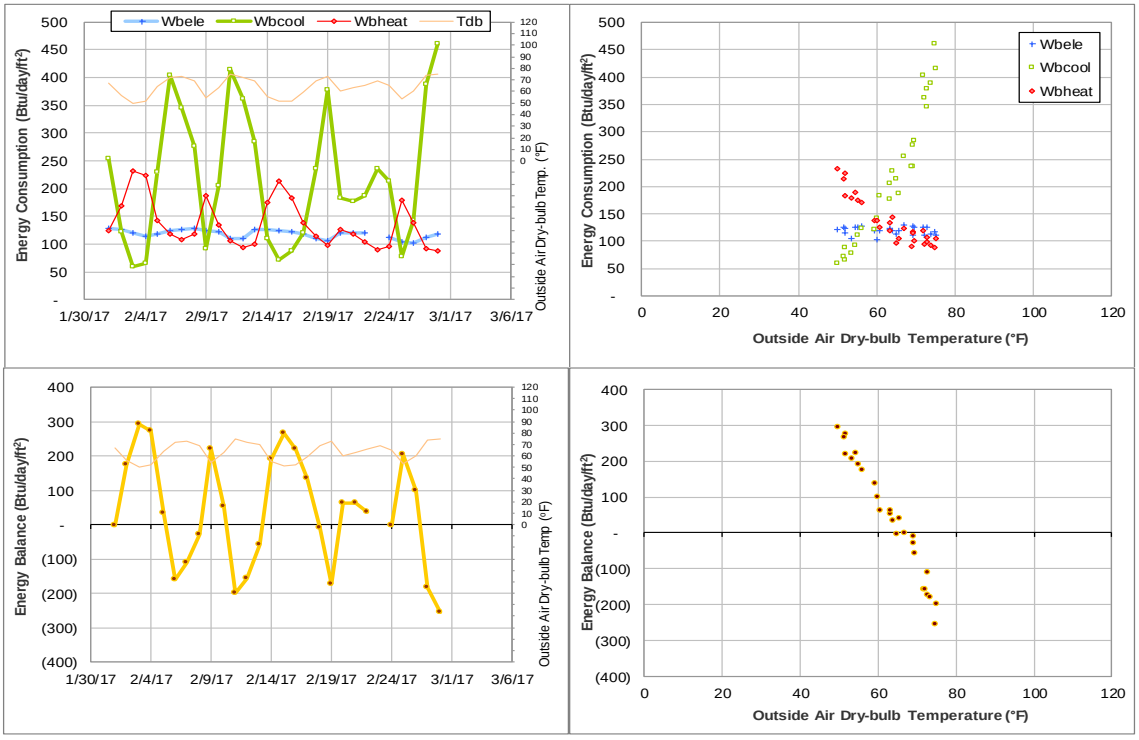



Figure IV-58 Reed-McDonald and Engineering Innovation Center TAMU BLDG # 436 and 499 Energy Balance Plot during February 2017

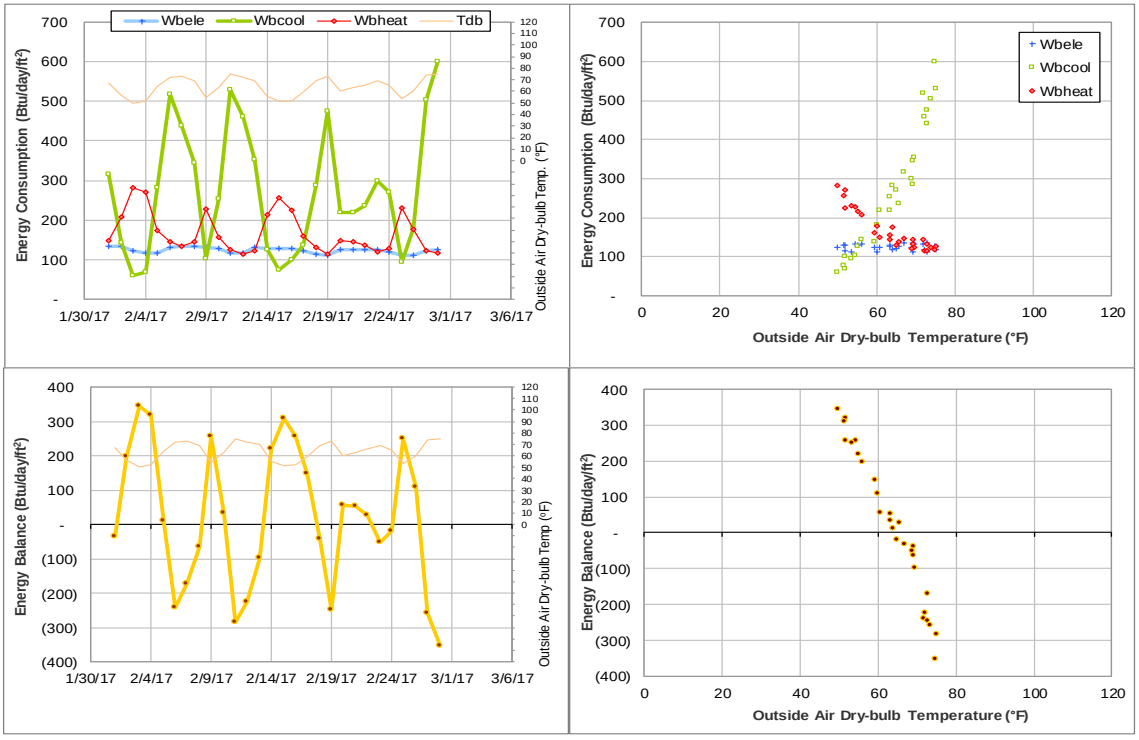



Figure IV-59 Reed-McDonald Building TAMU BLDG # 436 Energy Balance Plot during February 2017

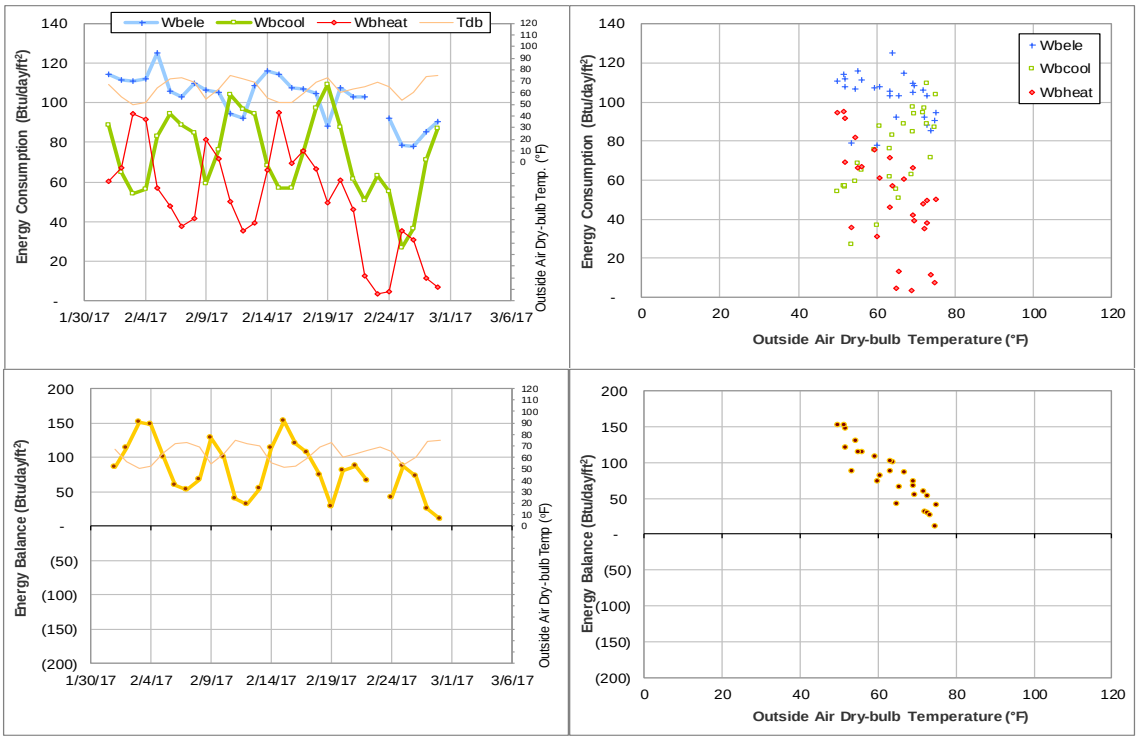



Figure IV-60 Engineering Innovation Center TAMU BLDG # 499 Energy Balance Plot during February 2017

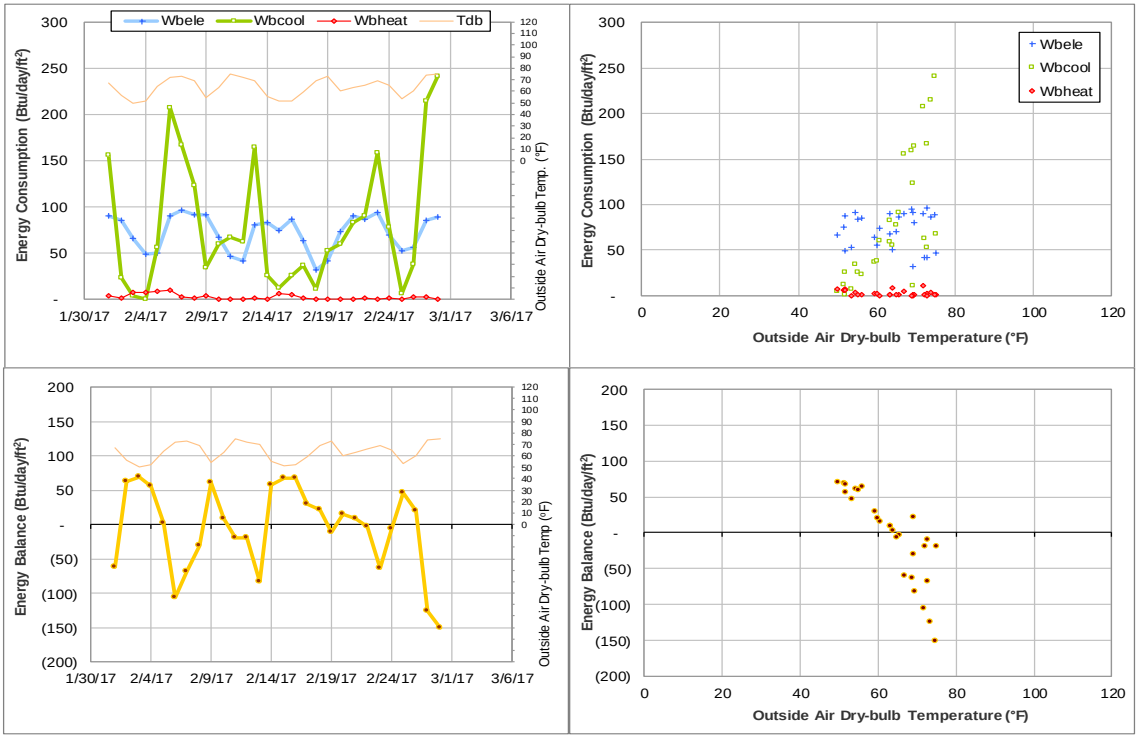



Figure IV-61 Harrington Education Center Classroom Building TAMU BLDG # 438 Energy Balance Plot during February 2017

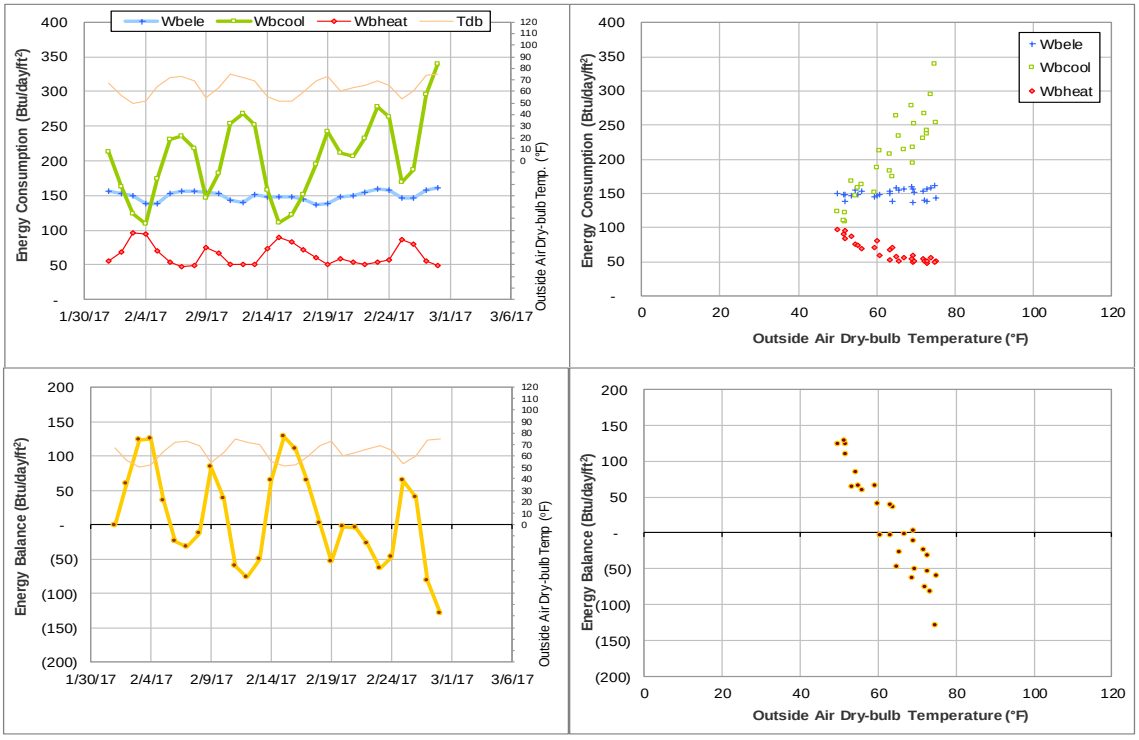



Figure IV-62 Oceanography & Meteorology Building TAMU BLDG # 443 Energy Balance Plot during February 2017

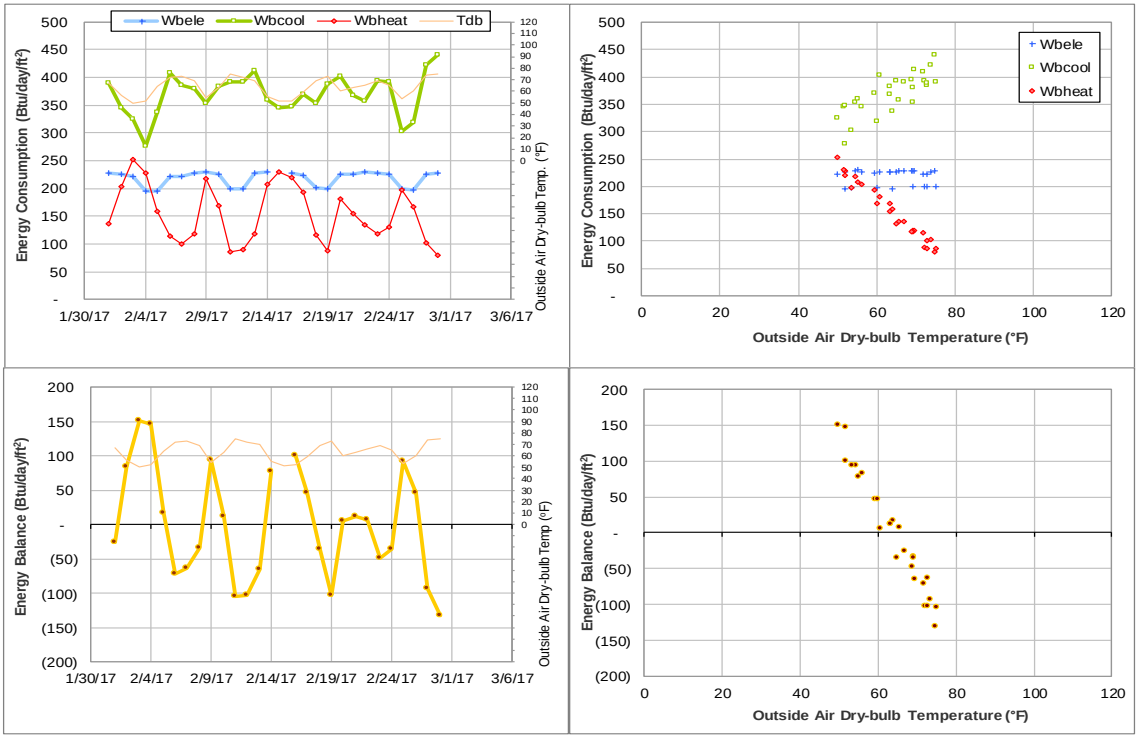



Figure IV-63 Peterson Building TAMU BLDG # 444 Energy Balance Plot during February 2017

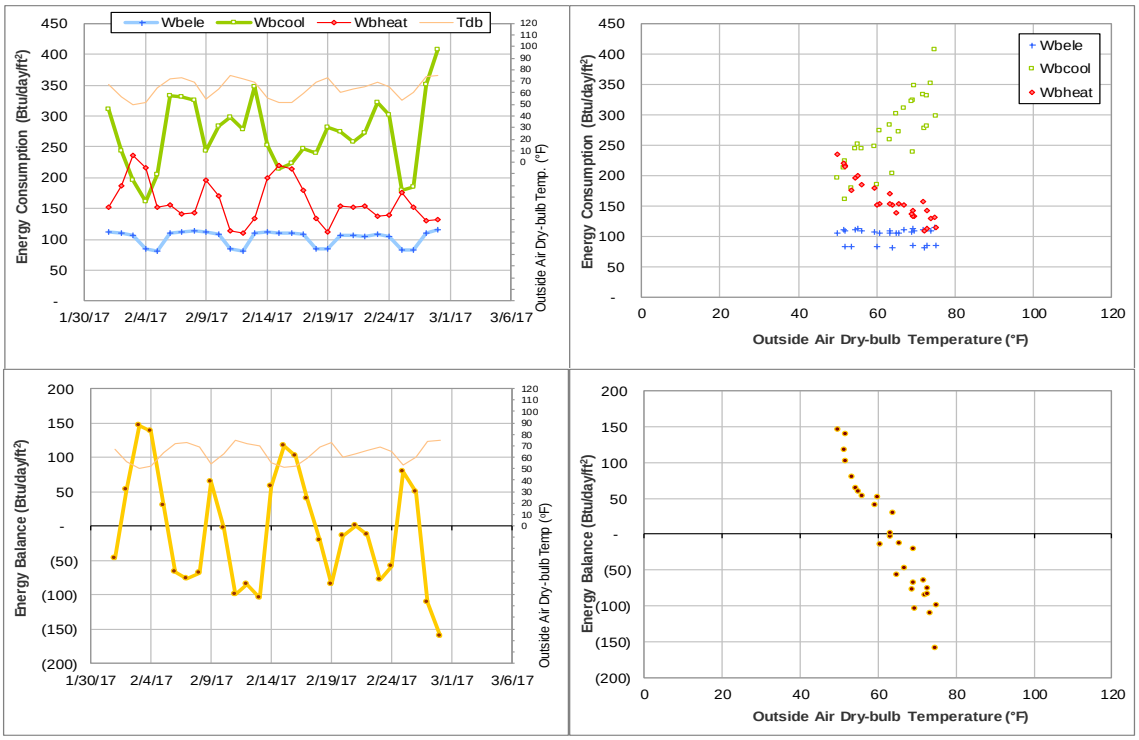



Figure IV-64 Teague Research Center and DPC Annex TAMU BLDG # 445 and 517 Energy Balance Plot during February 2017

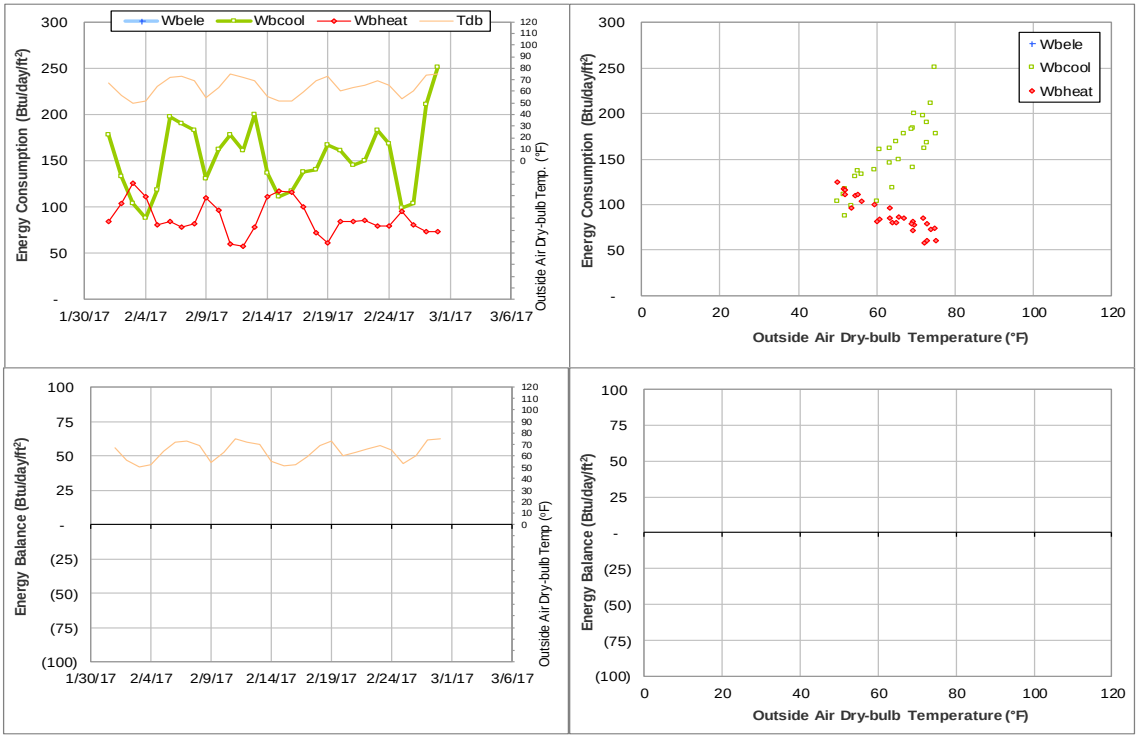



Figure IV-65 Teague Research Center TAMU BLDG # 445 Energy Balance Plot during February 2017

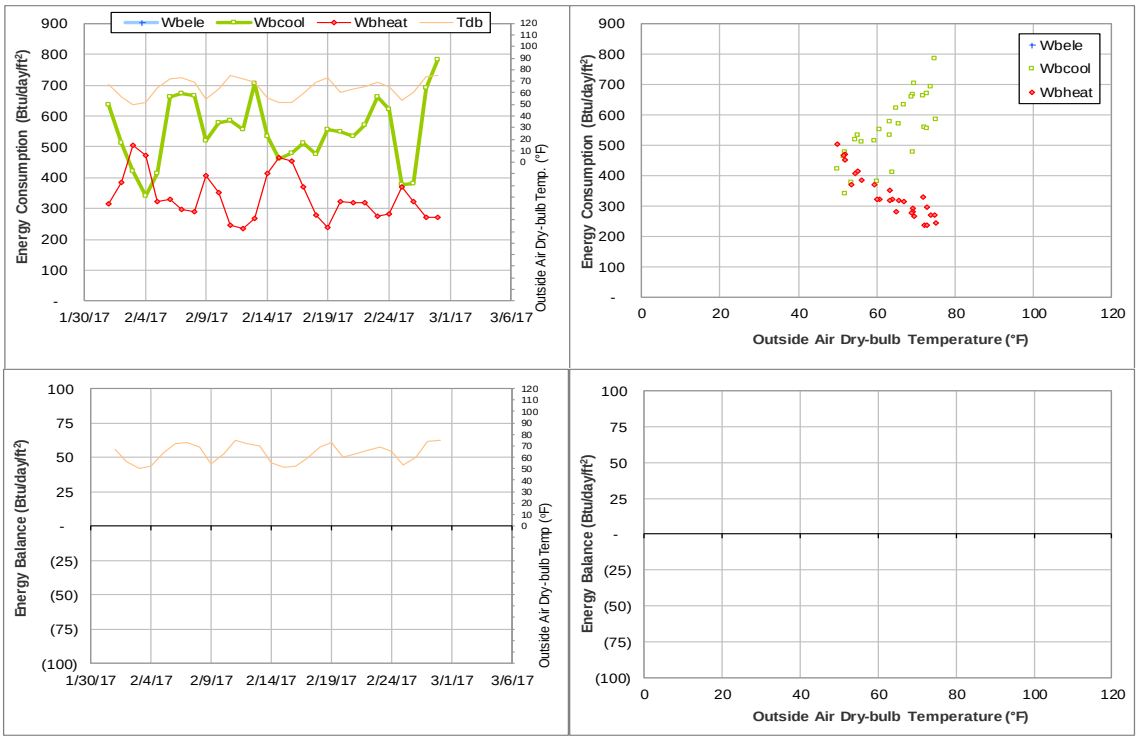



Figure IV-66 DPC Annex TAMU BLDG # 517 Energy Balance Plot during February 2017

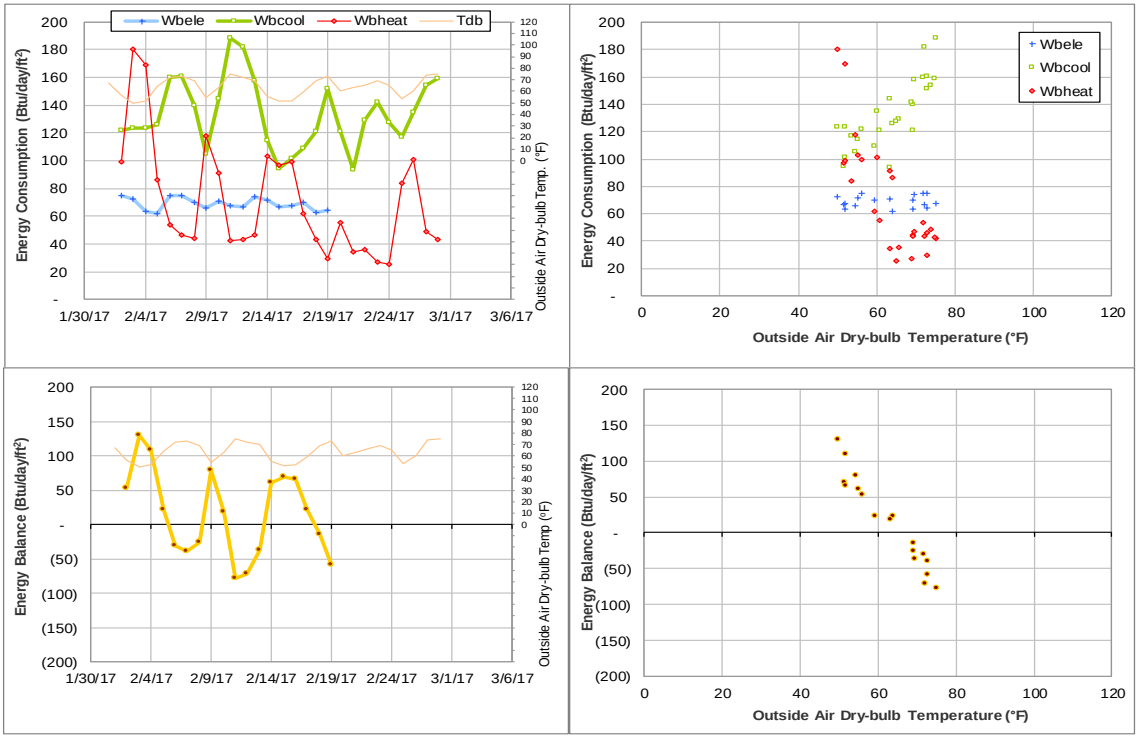



Figure IV-67 Rudder Tower and Theatre Complex TAMU BLDG # 446 Energy Balance Plot during February 2017

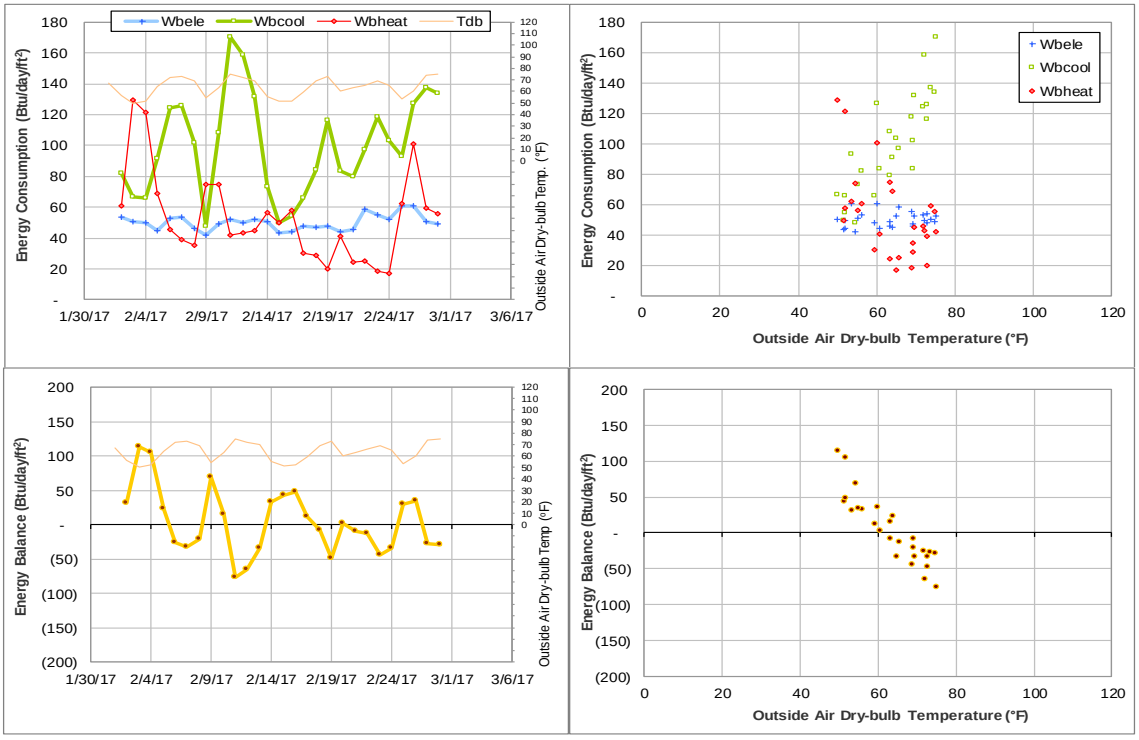



Figure IV-68 Rudder Theatre Complex TAMU BLDG # 446 Energy Balance Plot during February 2017

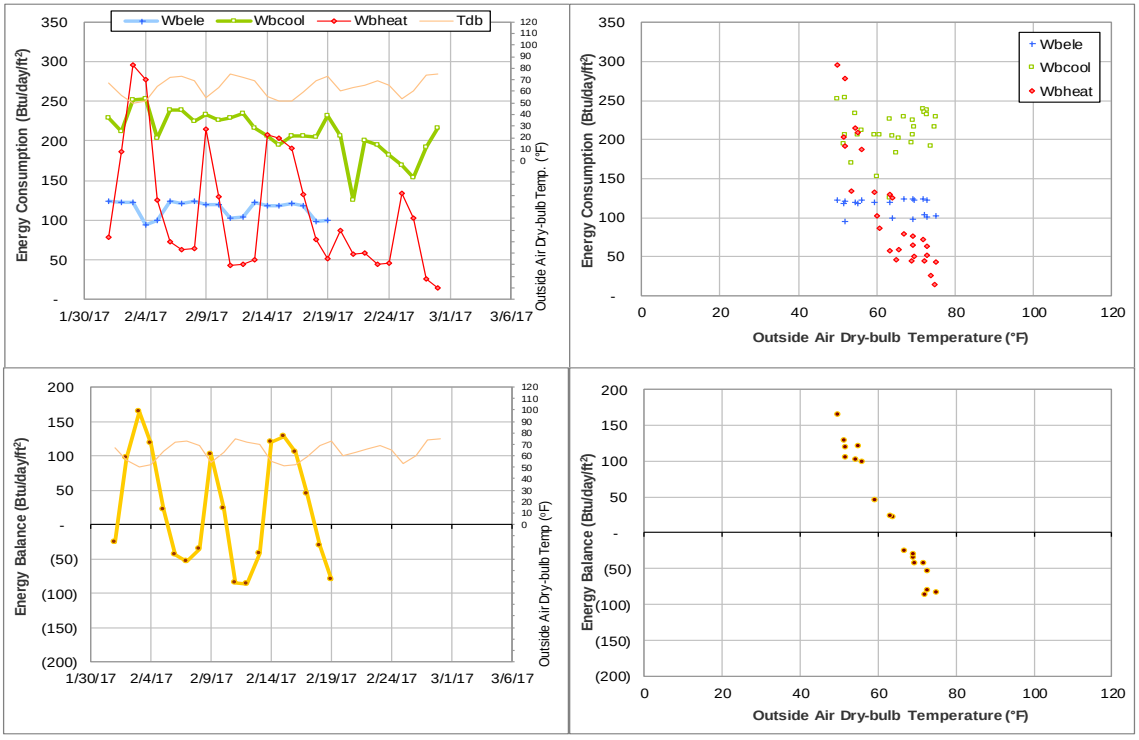



Figure IV-69 Rudder Tower TAMU BLDG # 446 Energy Balance Plot during February 2017

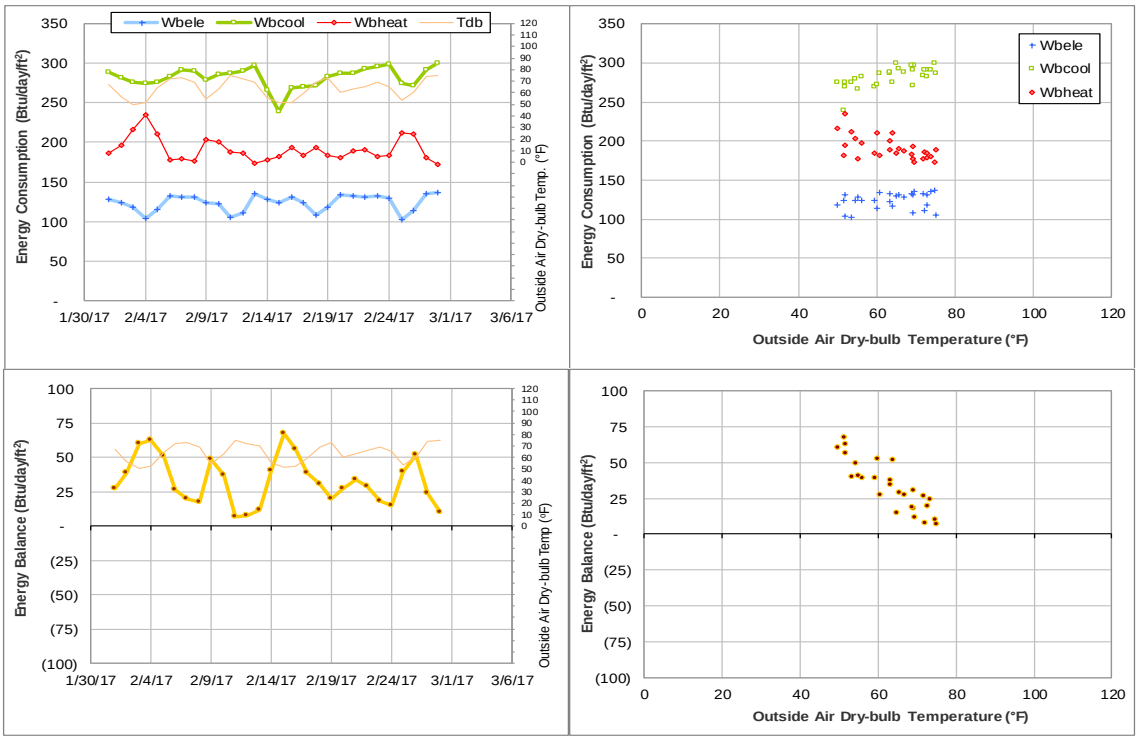



Figure IV-70 Adams Band Hall TAMU BLDG # 448 Energy Balance Plot during February 2017

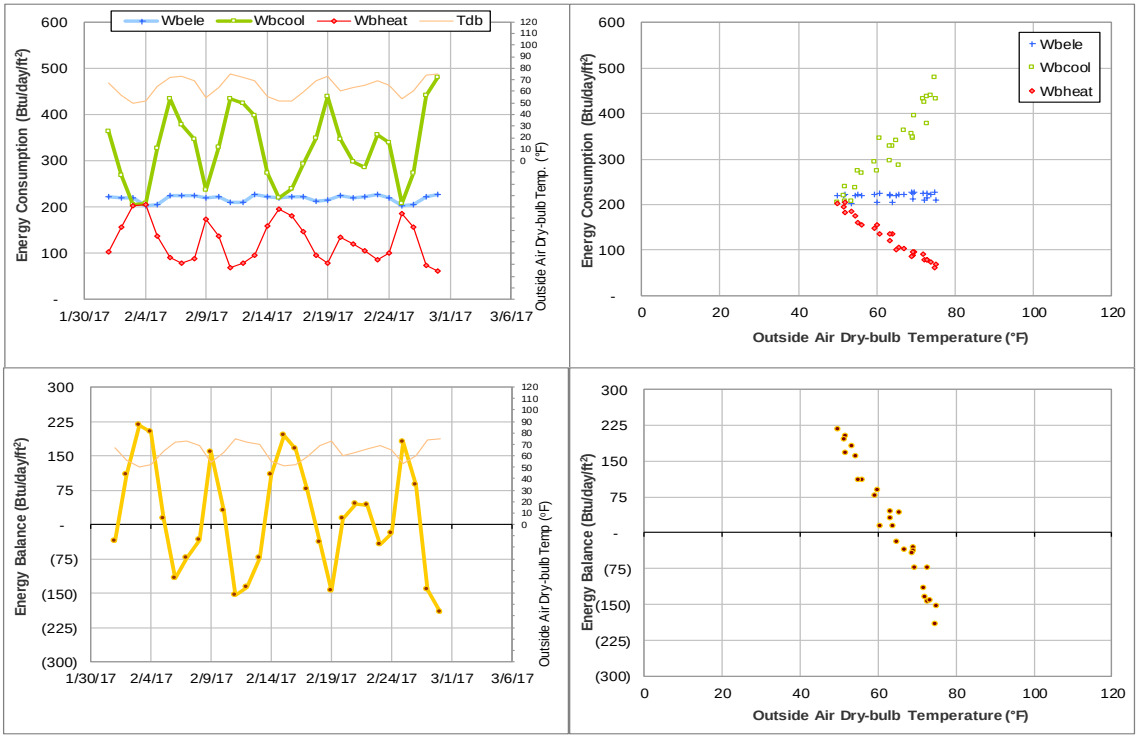



Figure IV-71 Biological Sciences Building - West TAMU BLDG # 449 Energy Balance Plot during February 2017

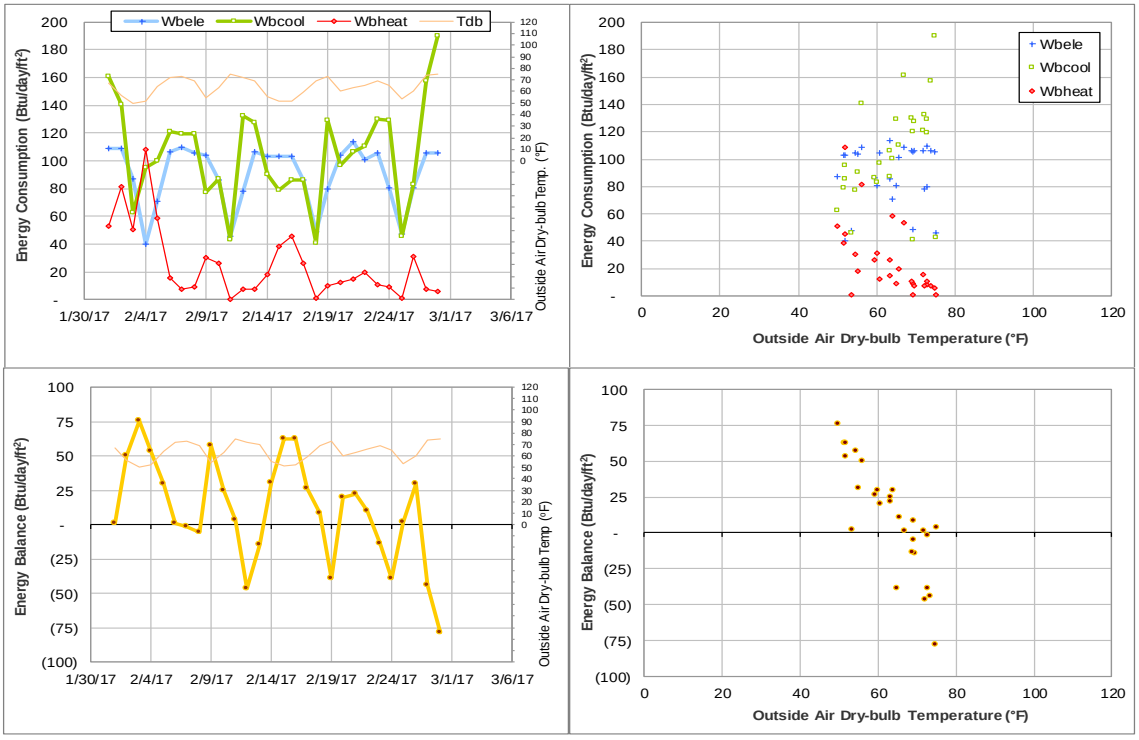



Figure IV-72 Duncan Dining Hall TAMU BLDG # 450 Energy Balance Plot during February 2017

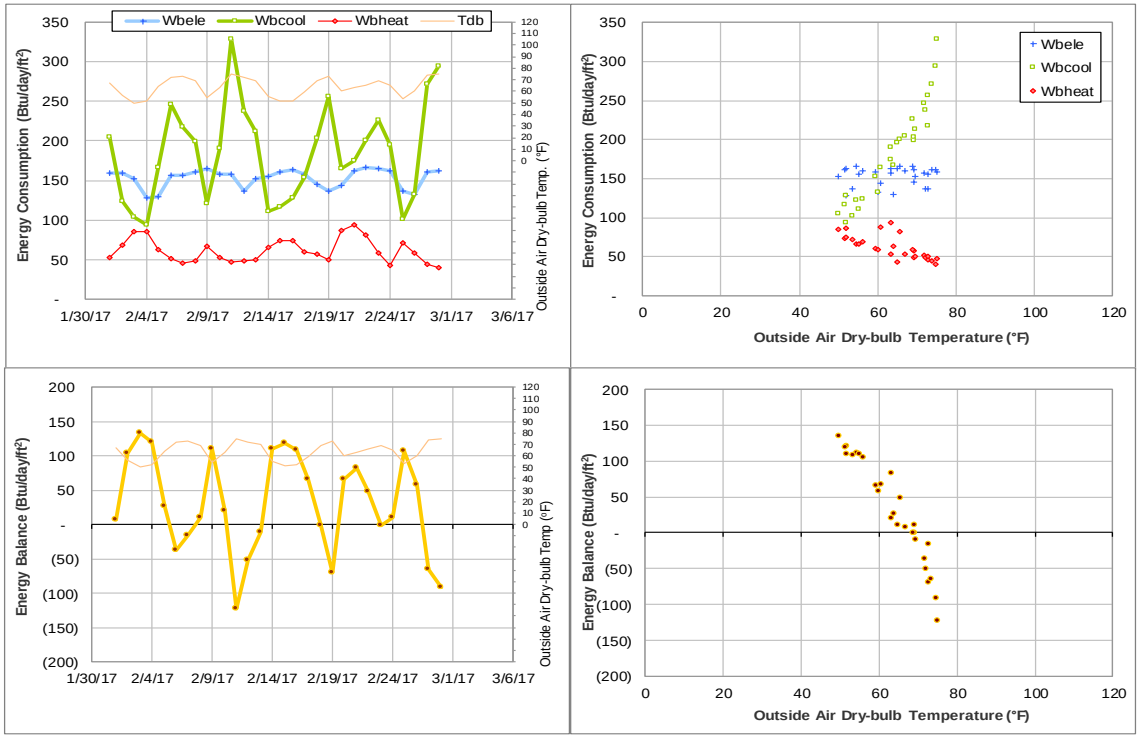



Figure IV-73 MSC TAMU BLDG # 454 Energy Balance Plot during February 2017

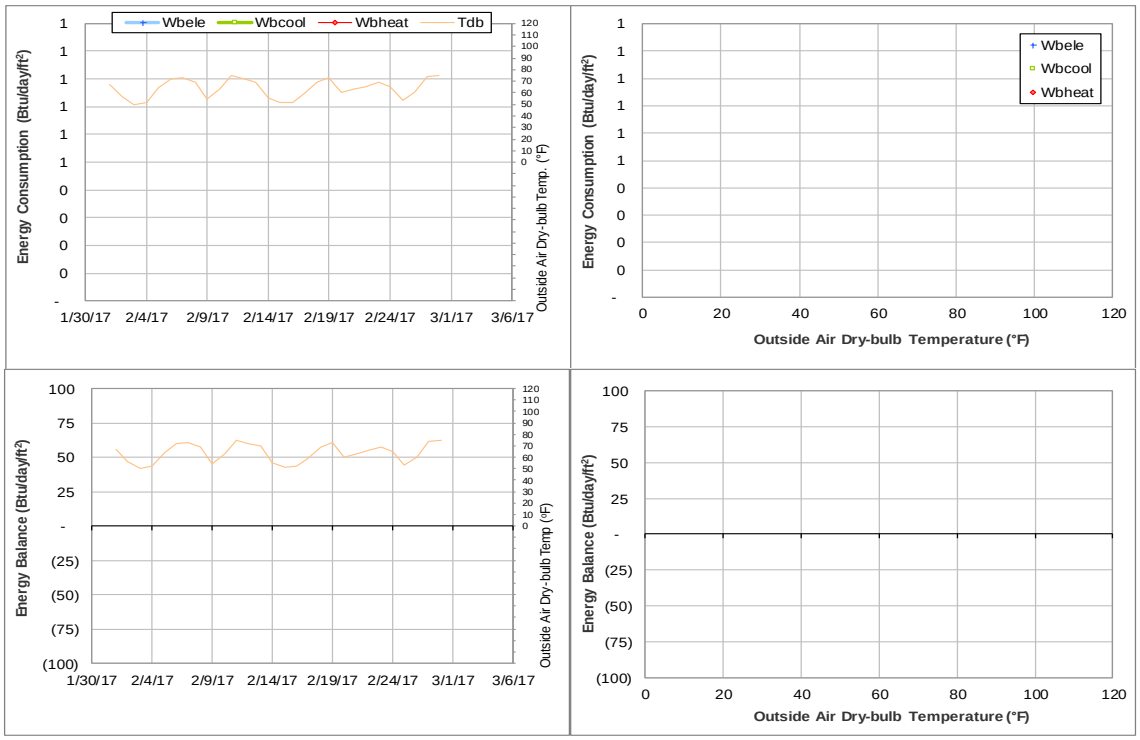



Figure IV-74 Military Sciences Building TAMU BLDG # 456 Energy Balance Plot during February 2017

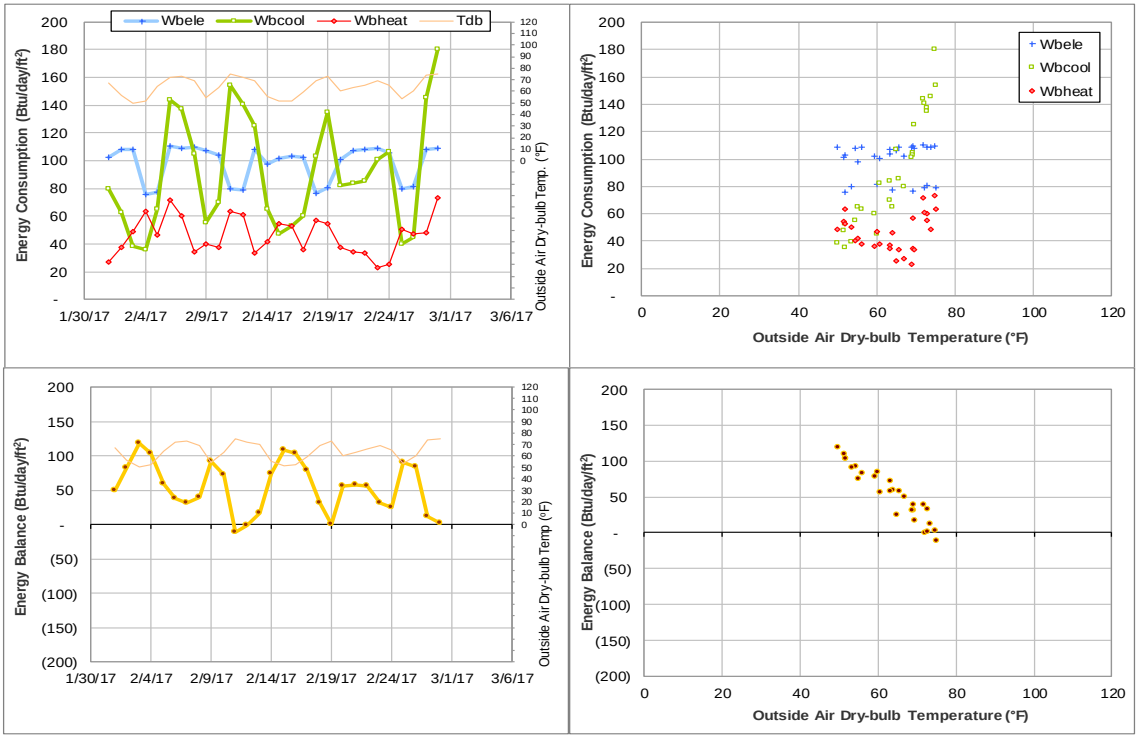



Figure IV-75 TAES Annex Building TAMU BLDG # 457 Energy Balance Plot during February 2017

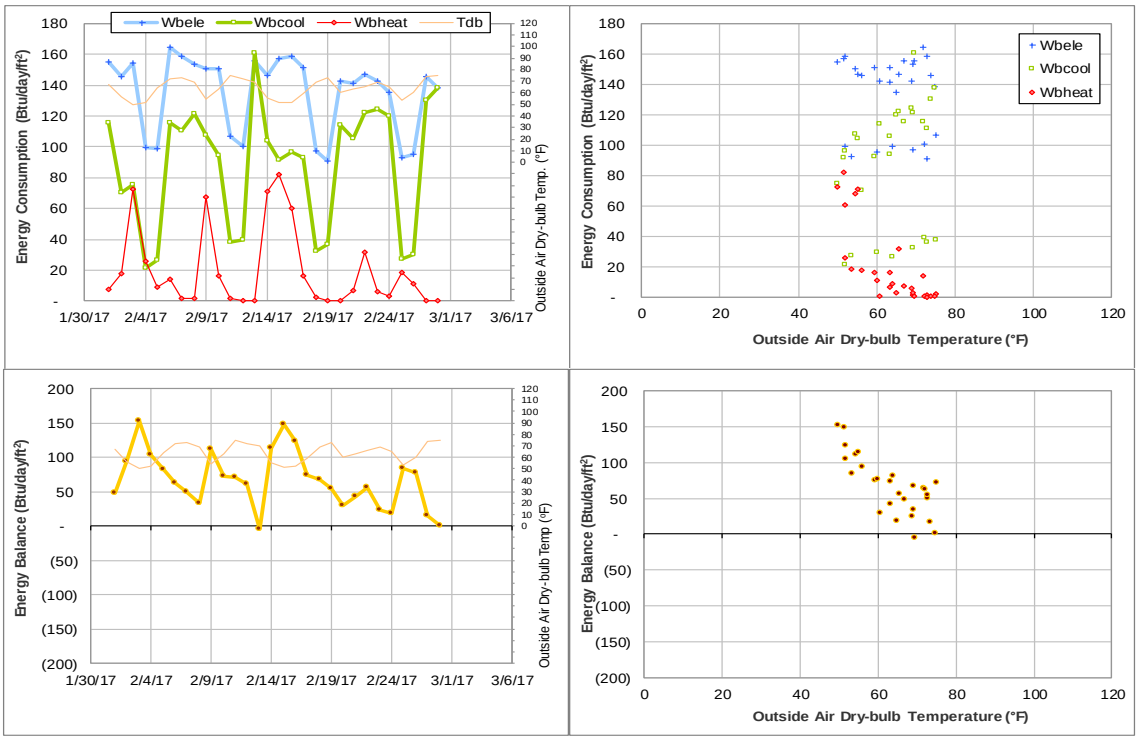



Figure IV-76 Coke Building TAMU BLDG # 461 Energy Balance Plot during February 2017

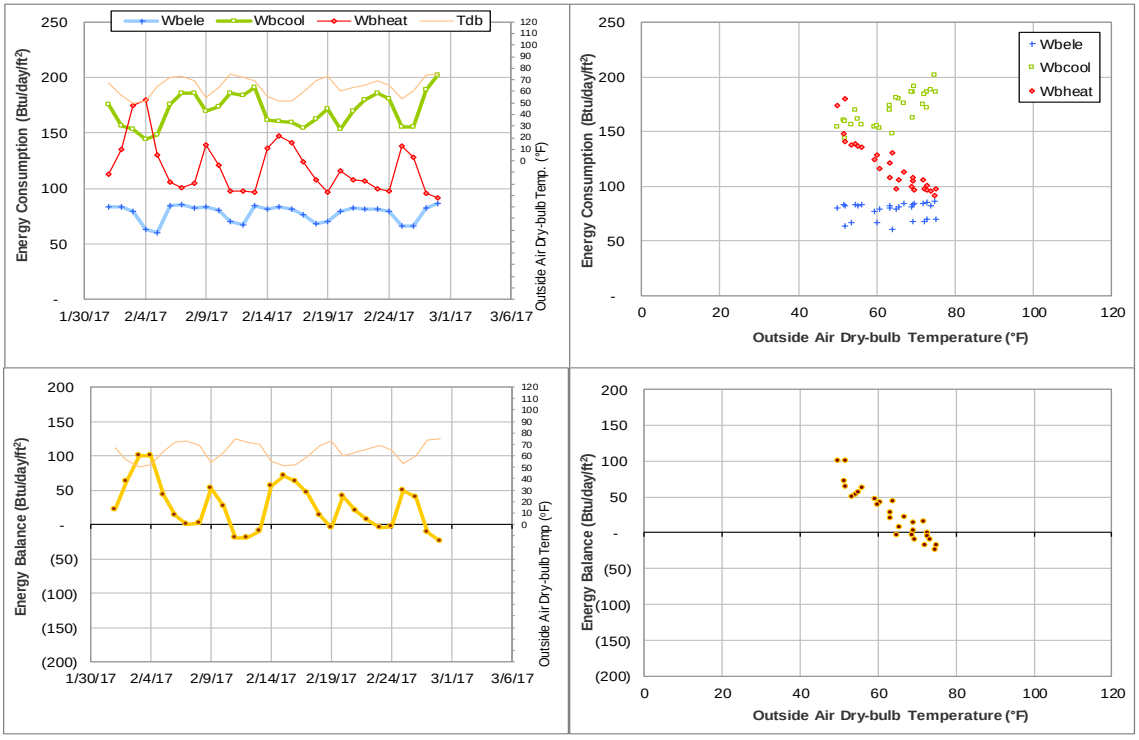



Figure IV-77 Academic Building TAMU BLDG # 462 Energy Balance Plot during February 2017

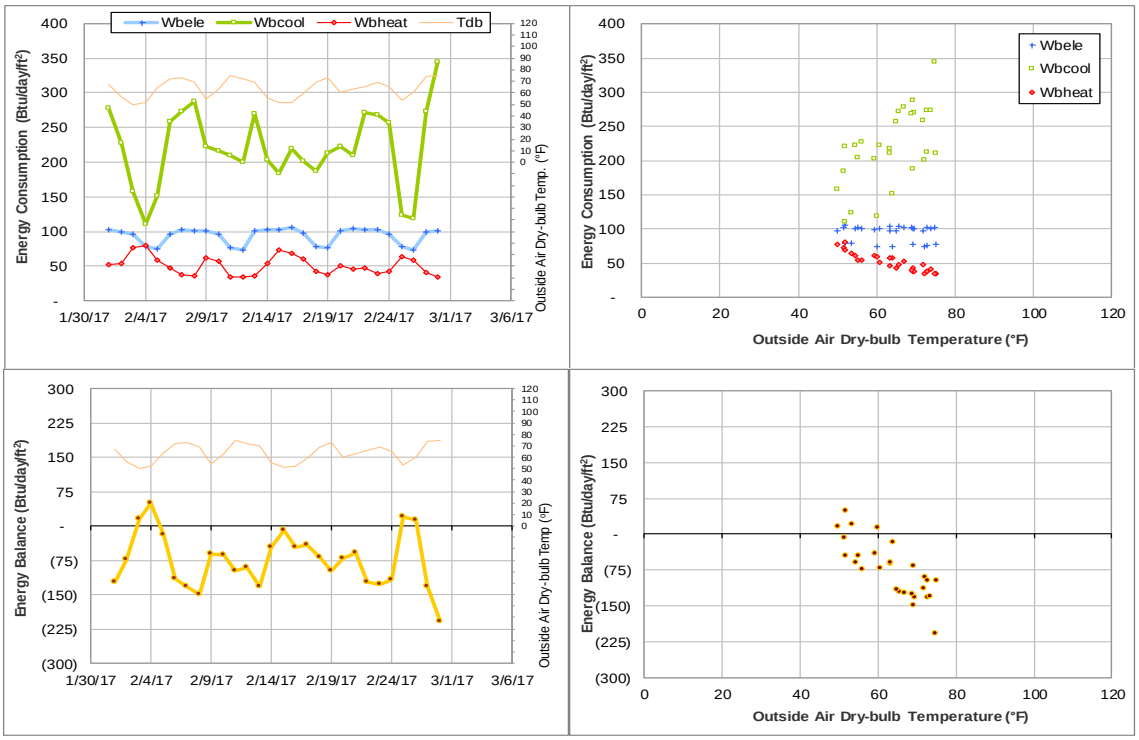



Figure IV-78 Psychology Building TAMU BLDG # 463 Energy Balance Plot during February 2017

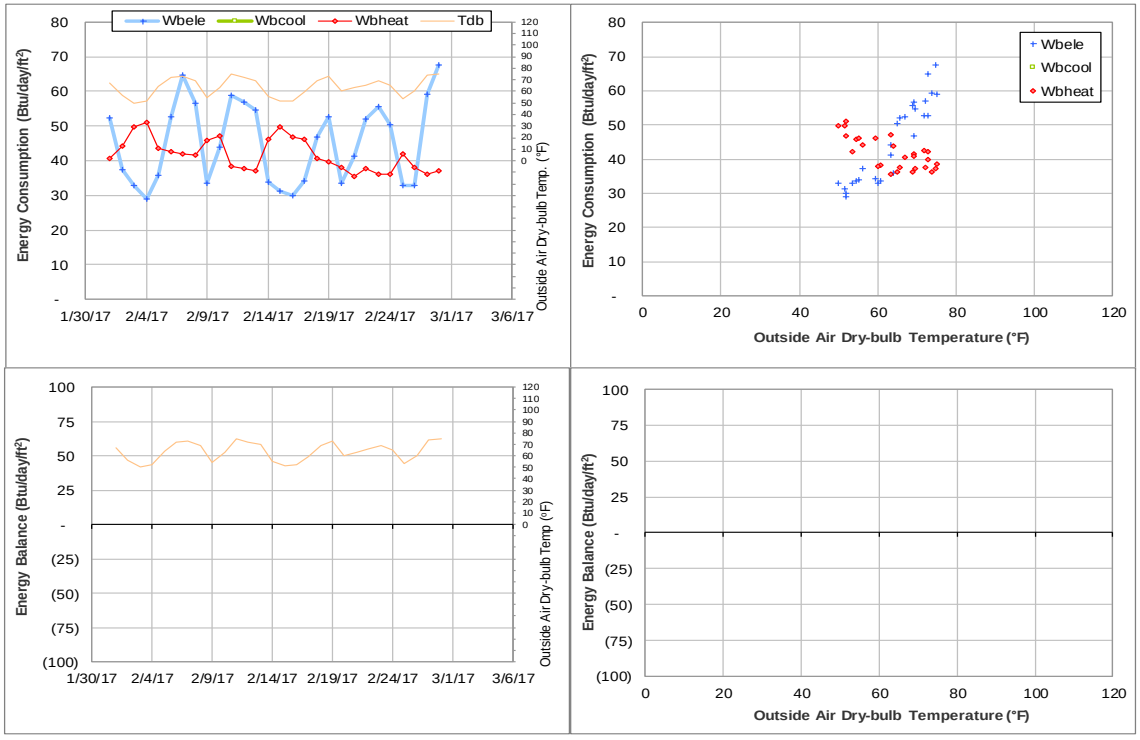



Figure IV-79 State Chemist Building TAMU BLDG # 464 Energy Balance Plot during February 2017

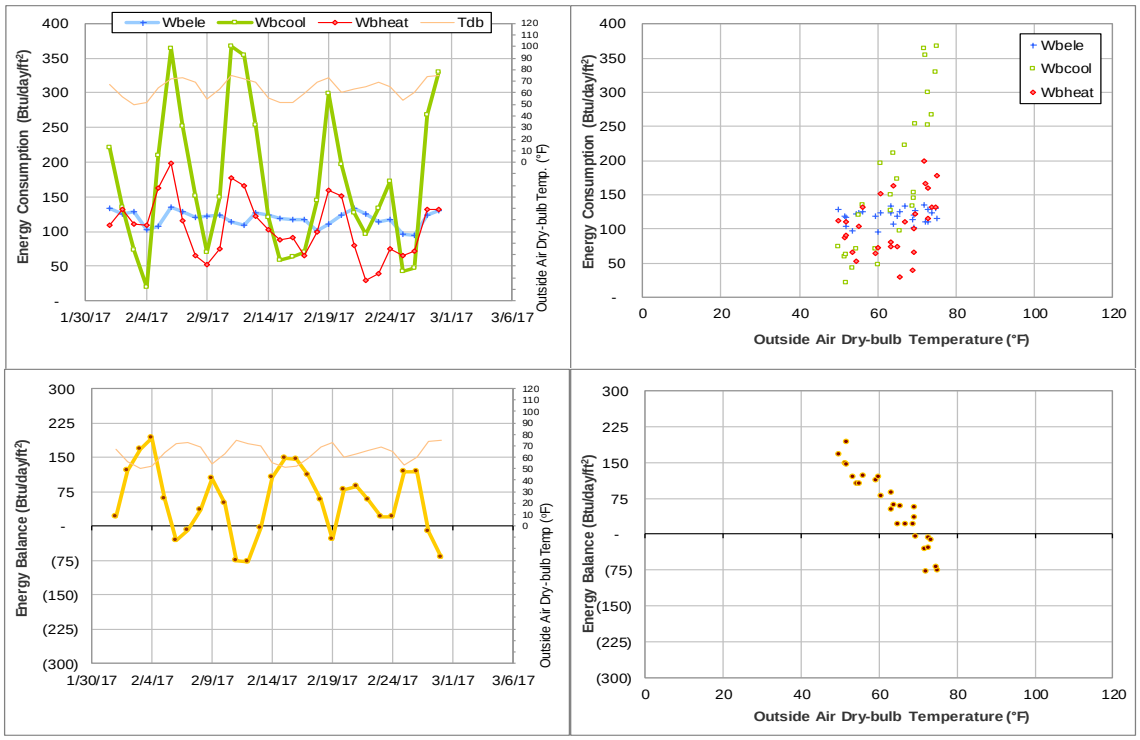



Figure IV-80 Butler Hall TAMU BLDG # 465 Energy Balance Plot during February 2017

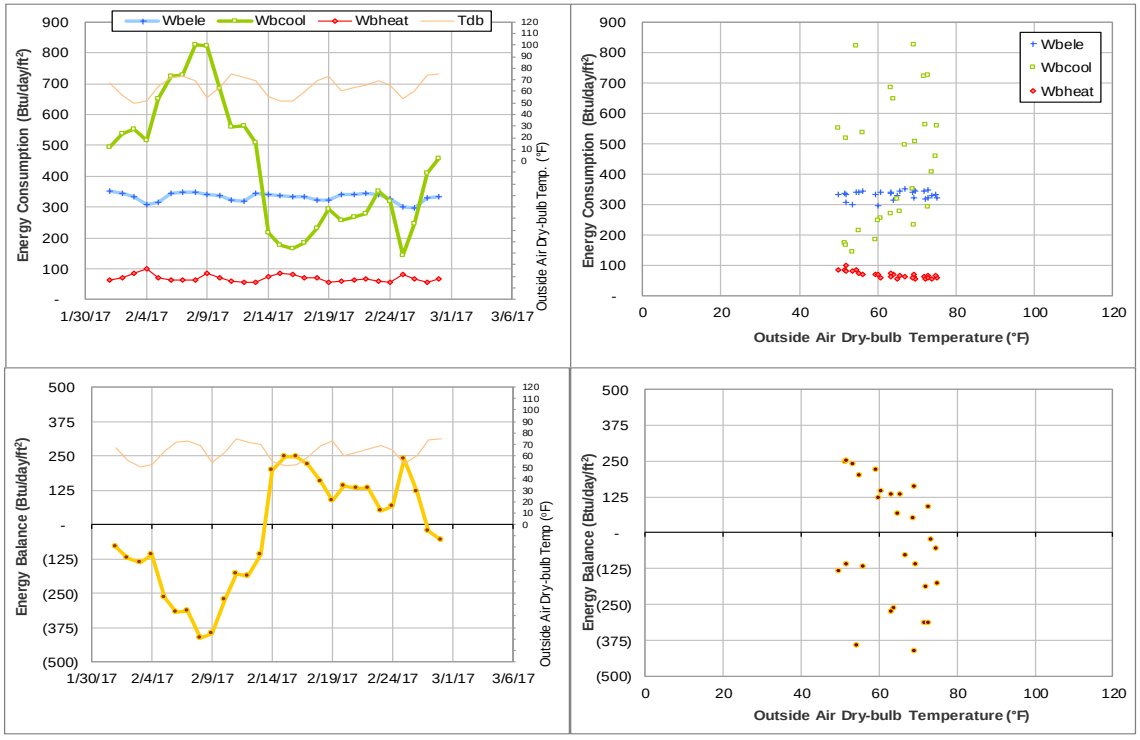



Figure IV-81 Biological Sciences Building - East TAMU BLDG # 467 Energy Balance Plot during February 2017

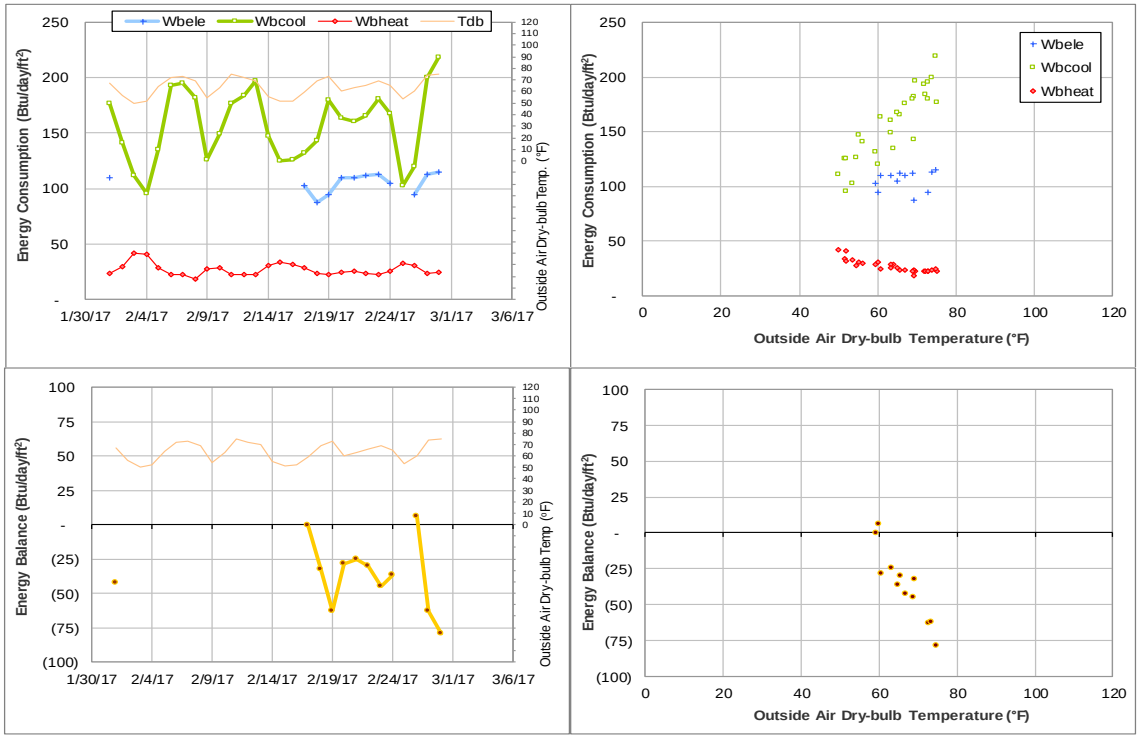



Figure IV-82 Evans Library TAMU BLDG # 468 Energy Balance Plot during February 2017

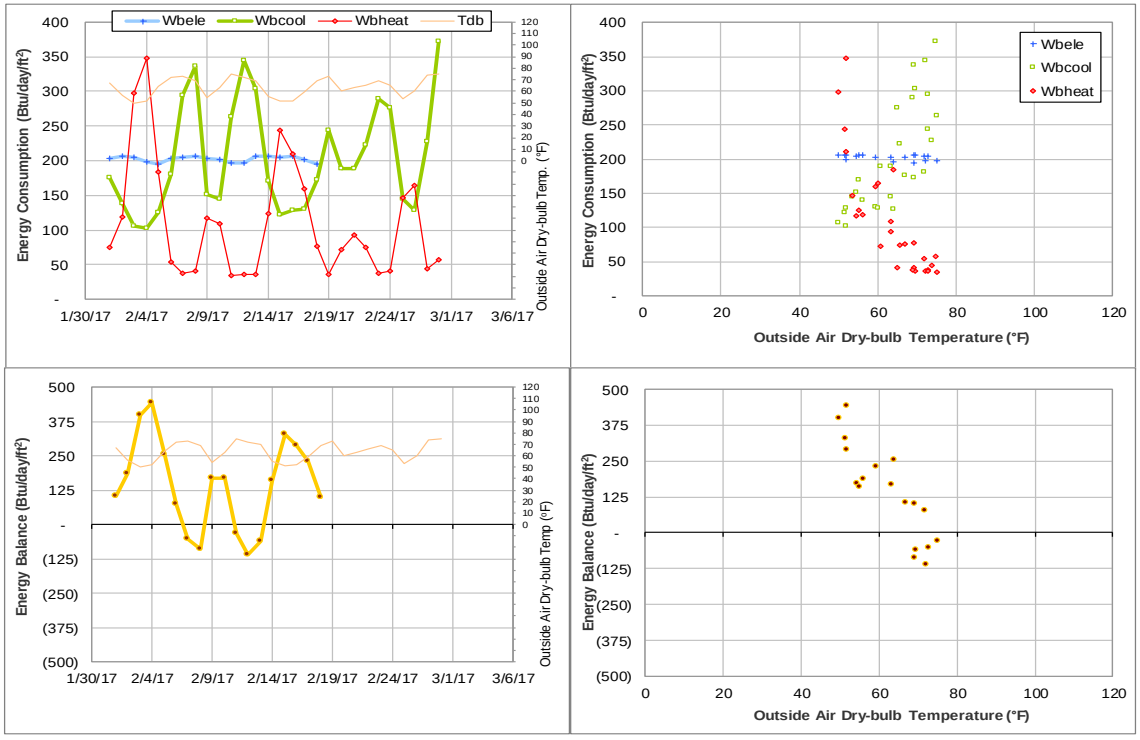



Figure IV-83 Central Campus Parking Garage TAMU BLDG # 469 Energy Balance Plot during February 2017

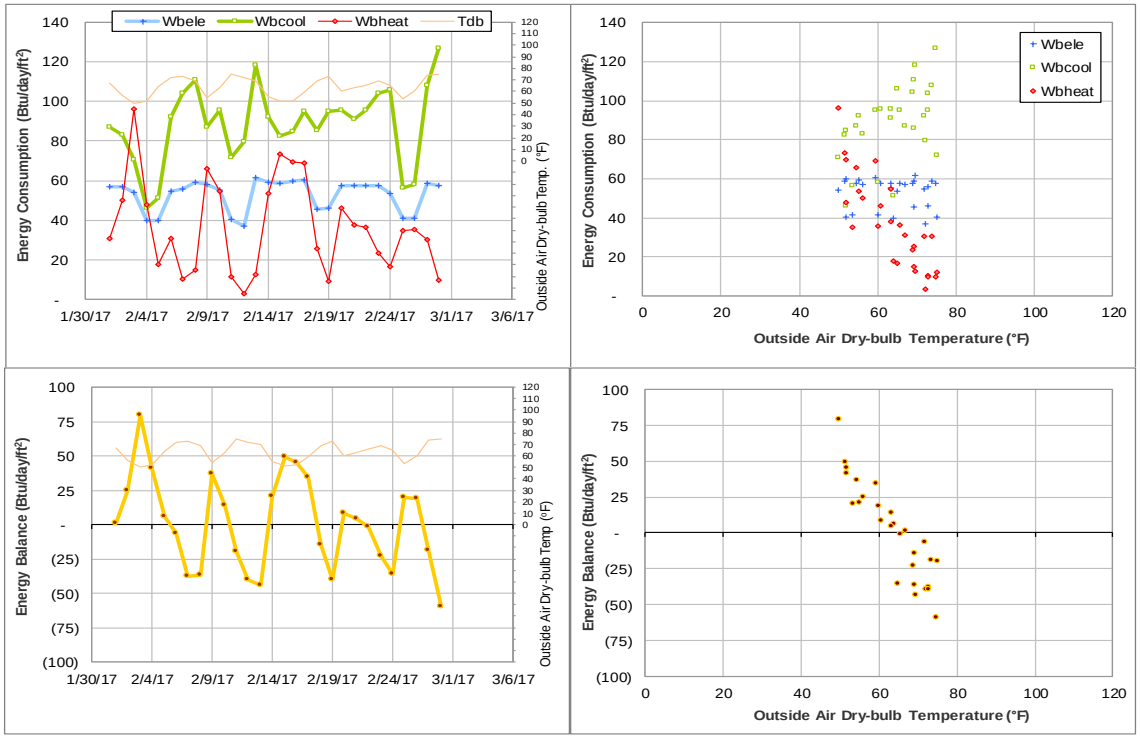



Figure IV-84 Glasscock History Bldg TAMU BLDG # 470 Energy Balance Plot during February 2017

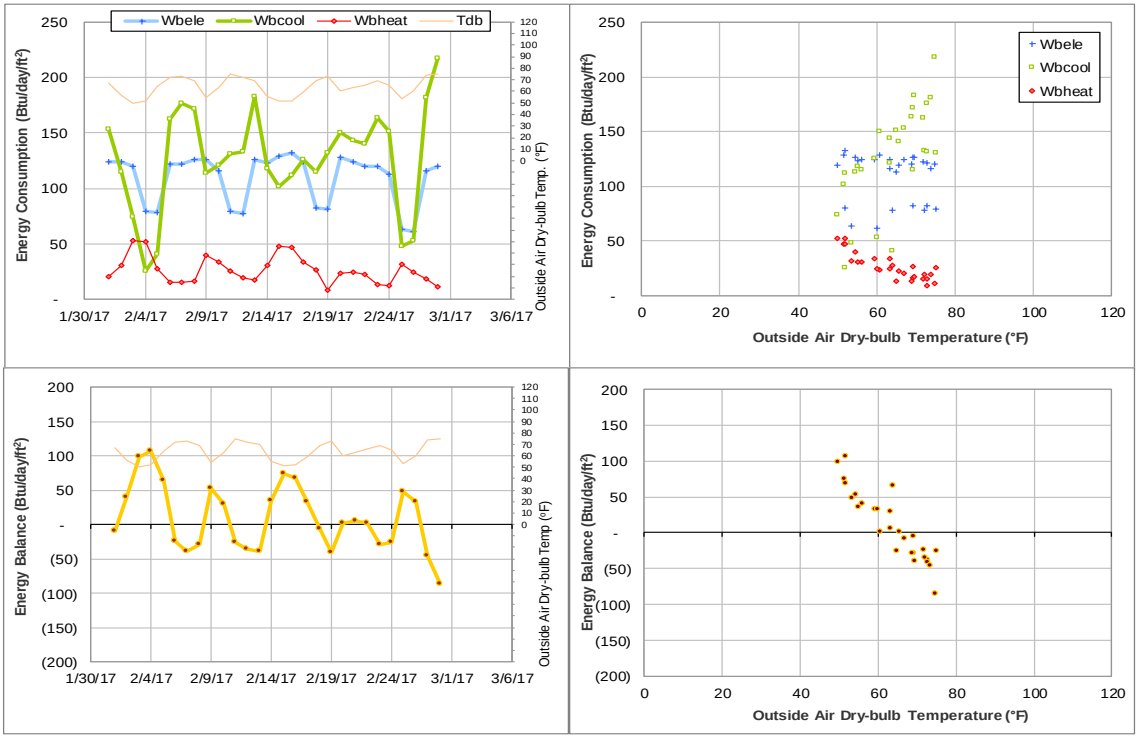



Figure IV-85 Pavilion TAMU BLDG # 471 Energy Balance Plot during February 2017

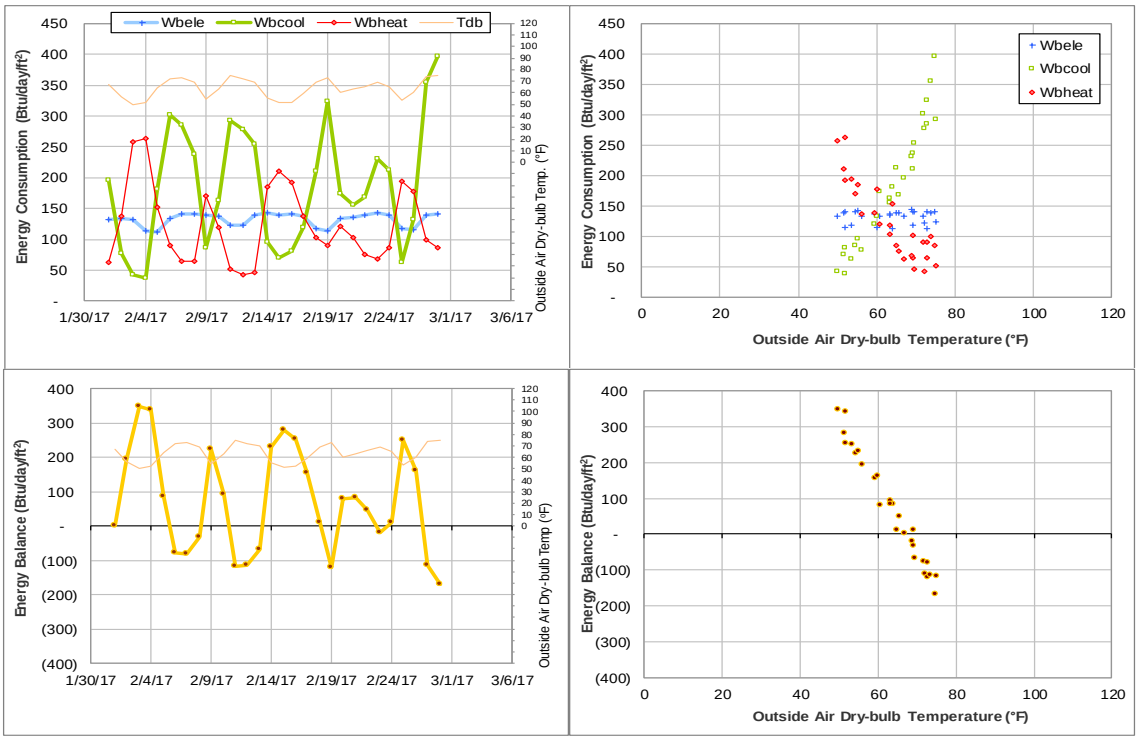



Figure IV-86 Animal Industries TAMU BLDG # 472 Energy Balance Plot during February 2017

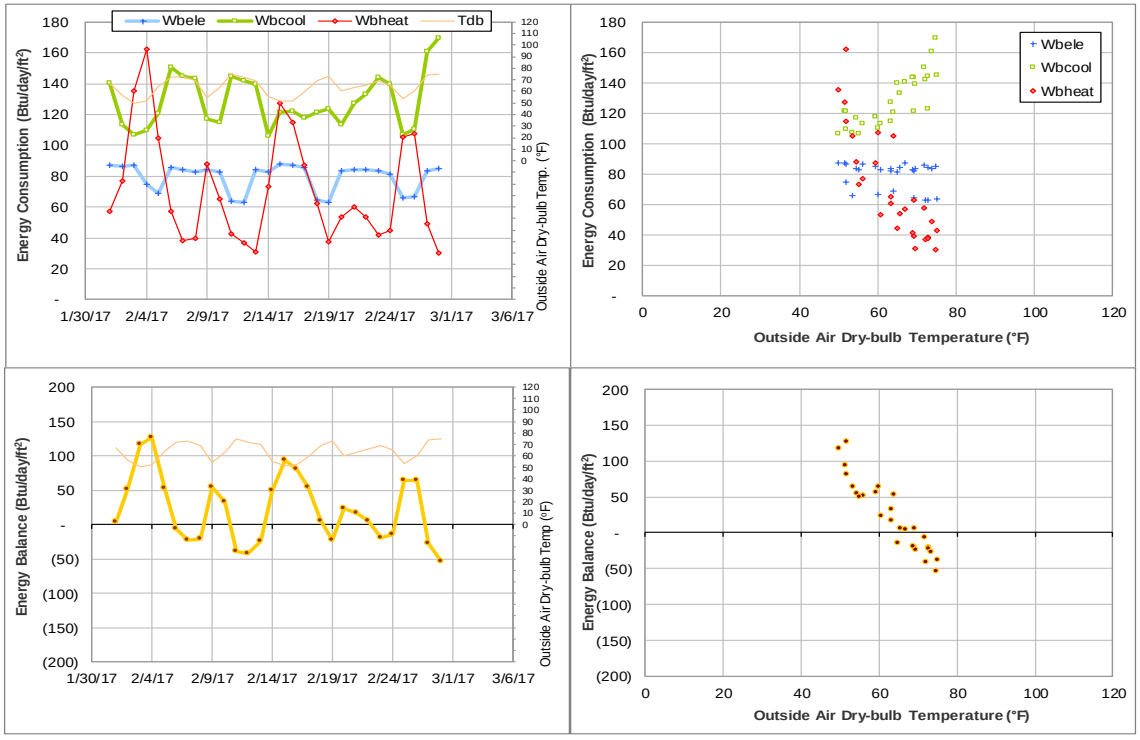



Figure IV-87 Williams Administration Building TAMU BLDG # 473 Energy Balance Plot during February 2017

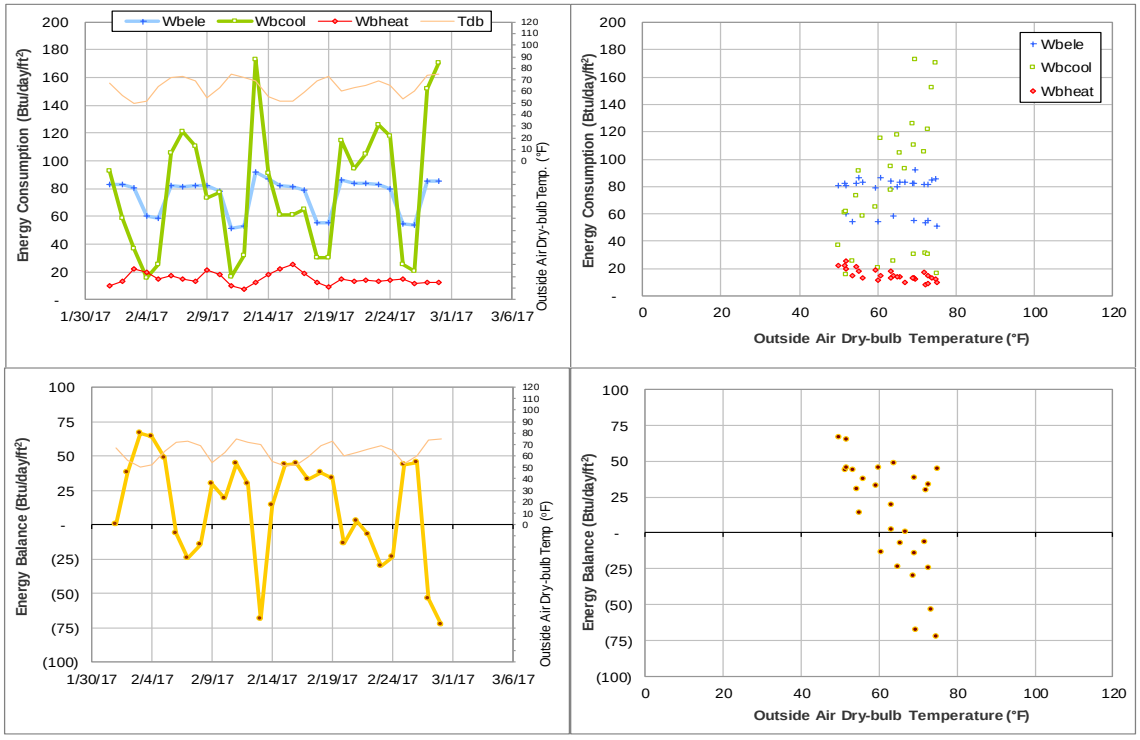



Figure IV-88 YMCA Building TAMU BLDG # 474 Energy Balance Plot during February 2017

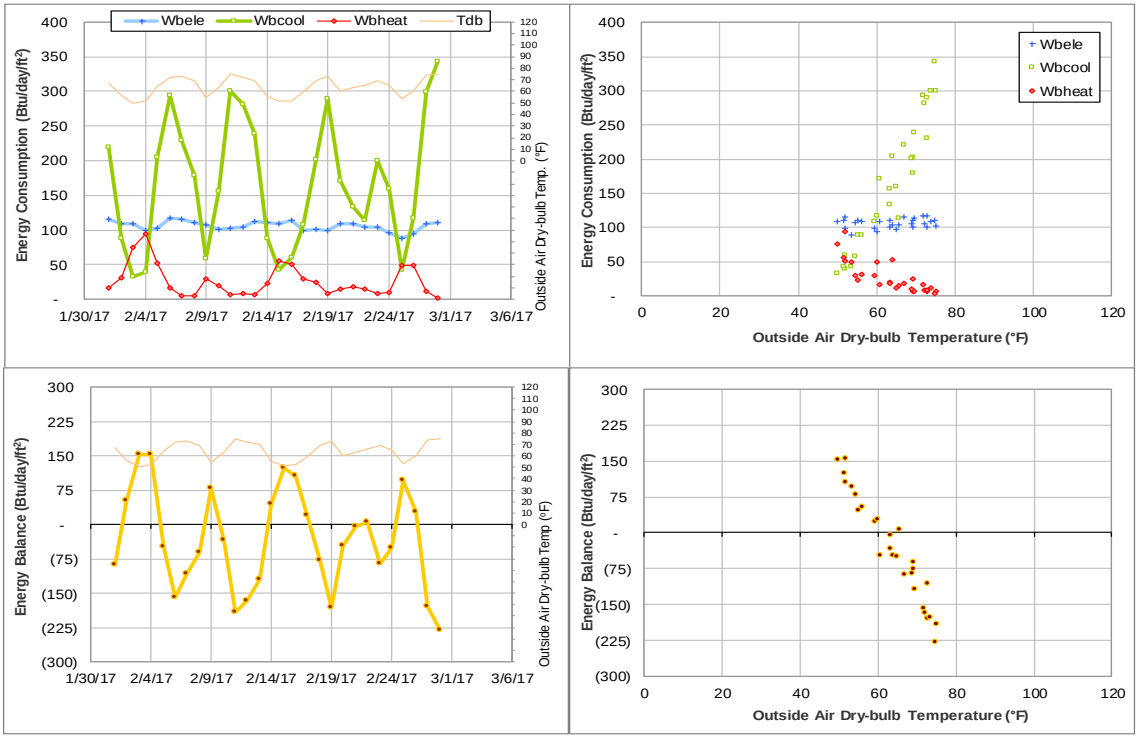



Figure IV-89 Francis Hall TAMU BLDG # 476 Energy Balance Plot during February 2017

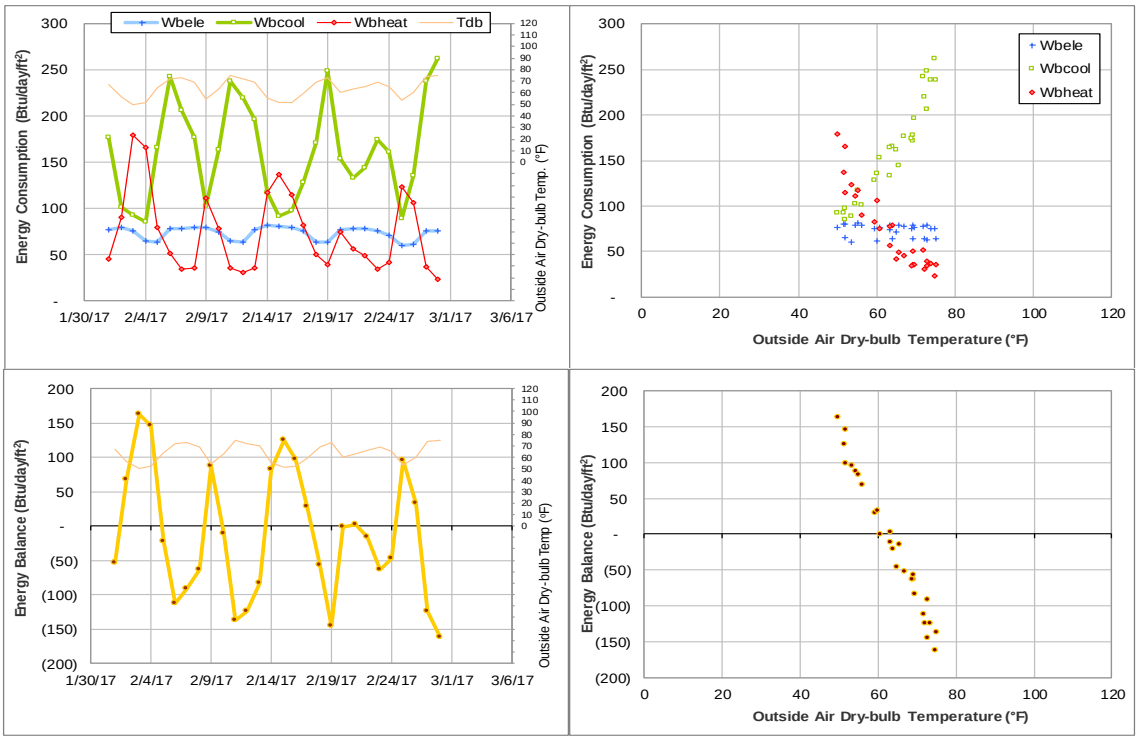



Figure IV-90 Anthropology Building TAMU BLDG # 477 Energy Balance Plot during February 2017

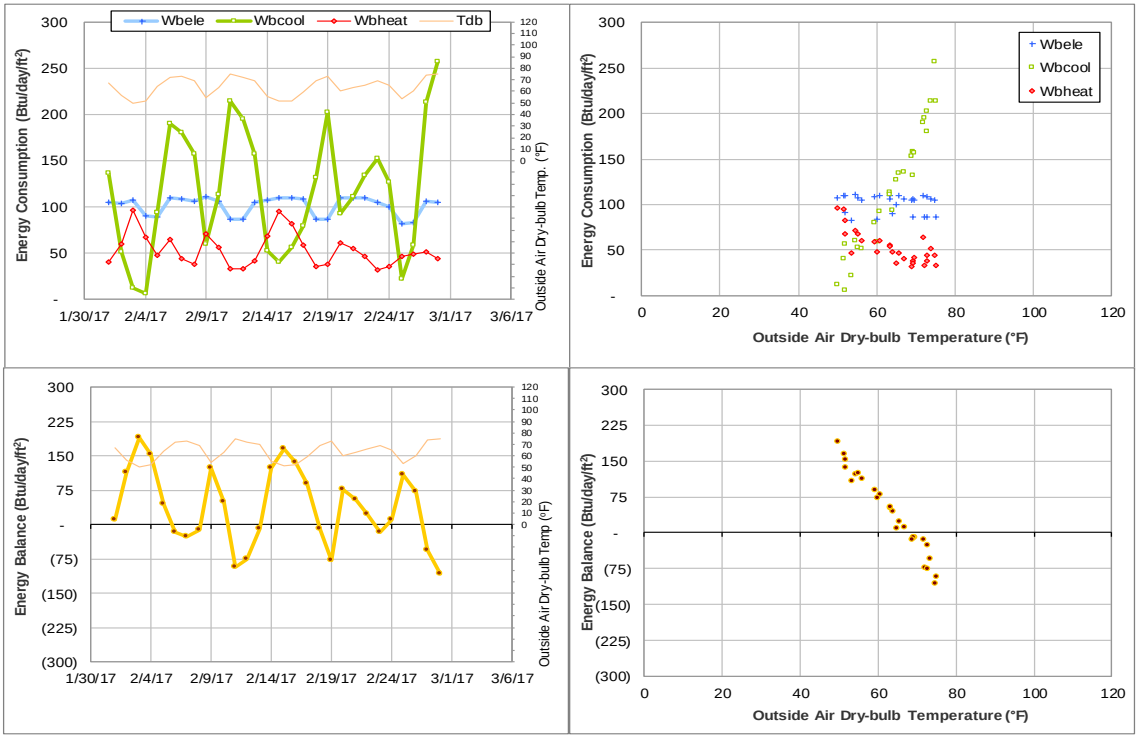



Figure IV-91 Scoates Hall TAMU BLDG # 478 Energy Balance Plot during February 2017

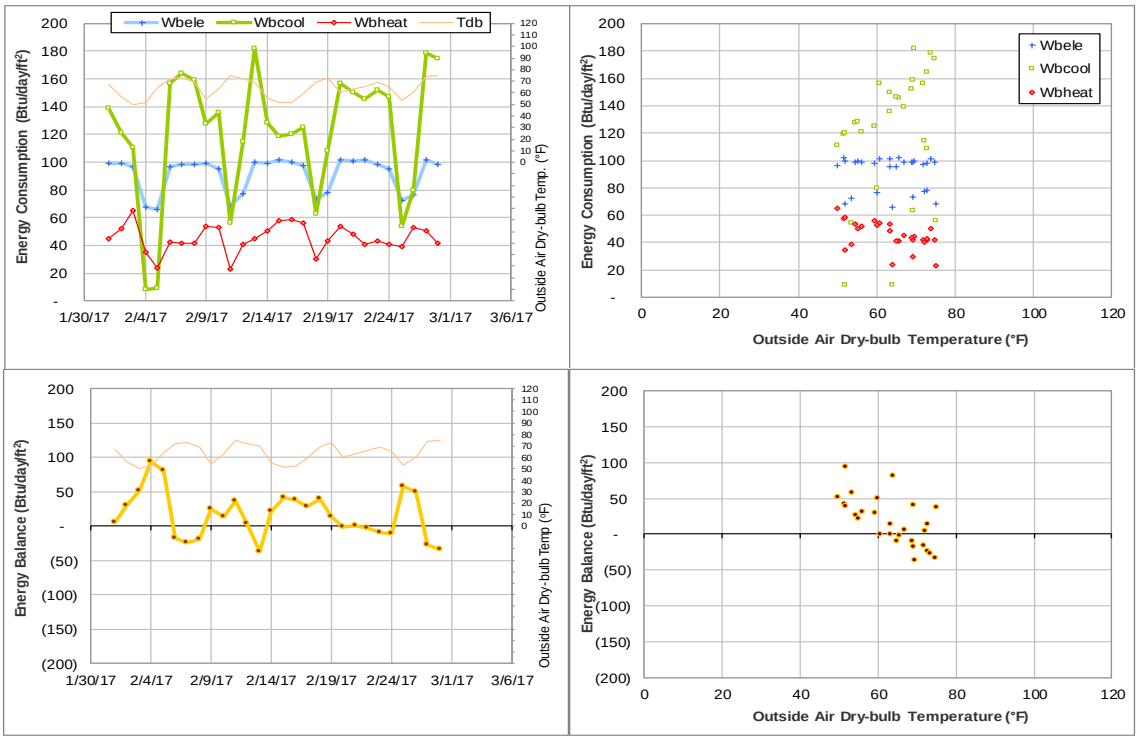



Figure IV-92 Bolton Hall TAMU BLDG # 480 Energy Balance Plot during February 2017

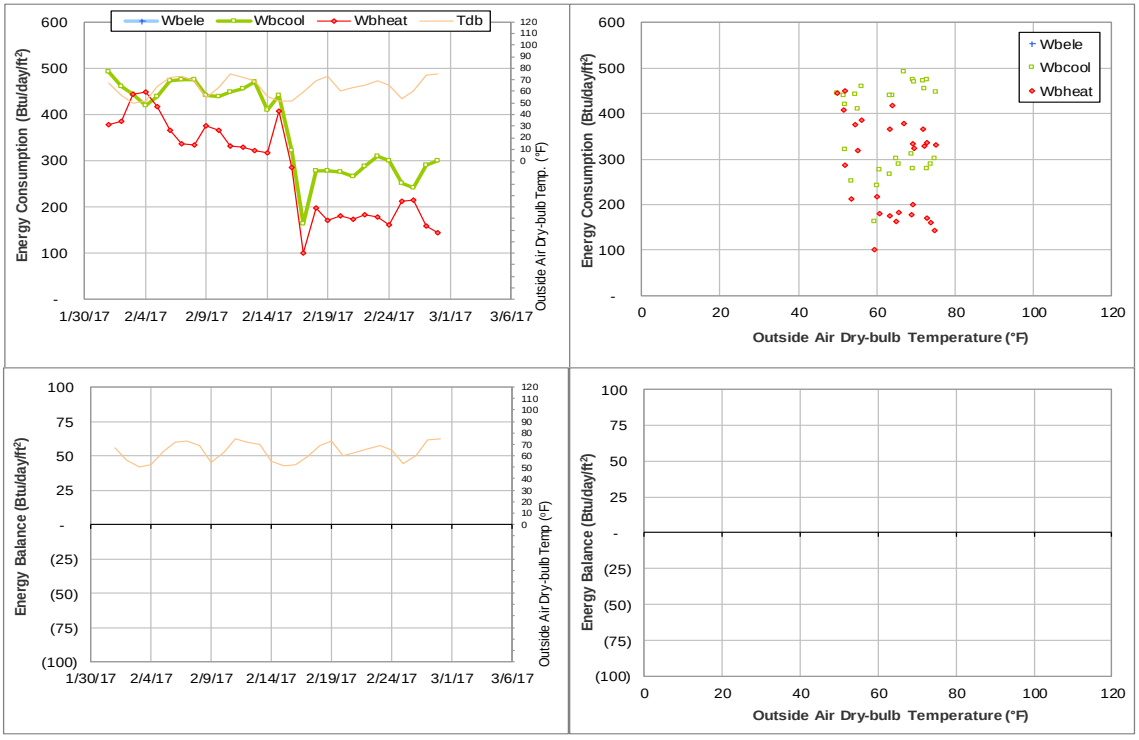



Figure IV-93 Heaton Hall TAMU BLDG # 481 Energy Balance Plot during February 2017

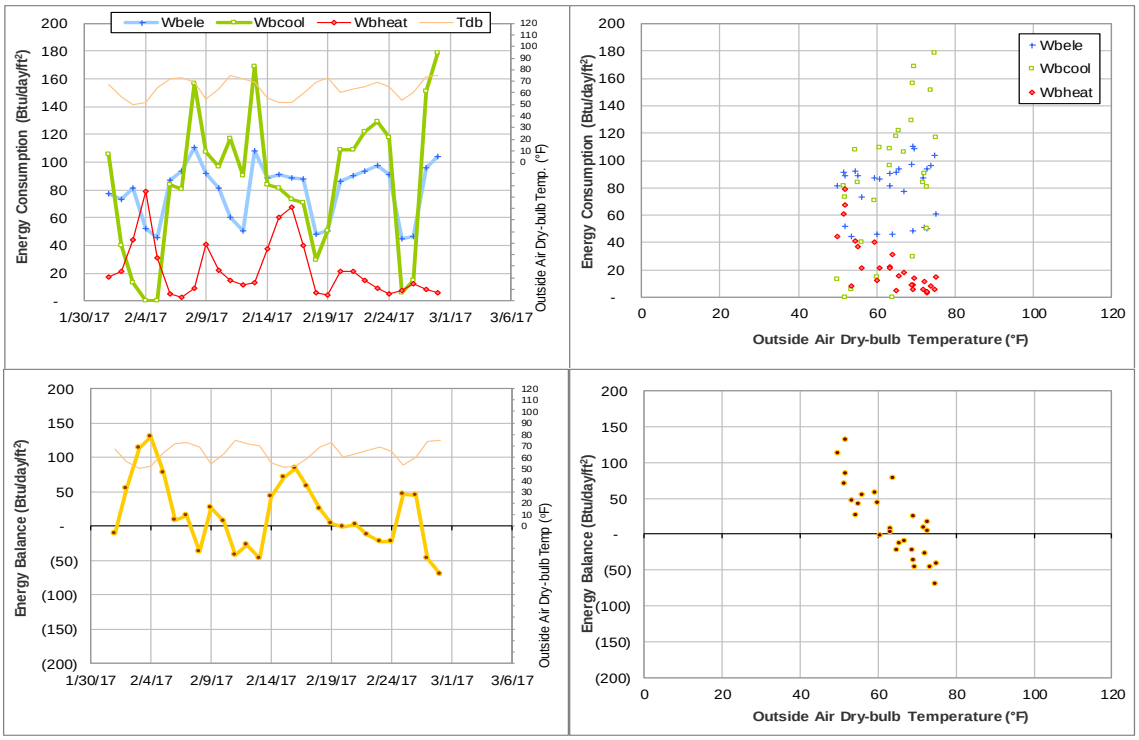



Figure IV-94 Fermier Hall TAMU BLDG # 482 Energy Balance Plot during February 2017

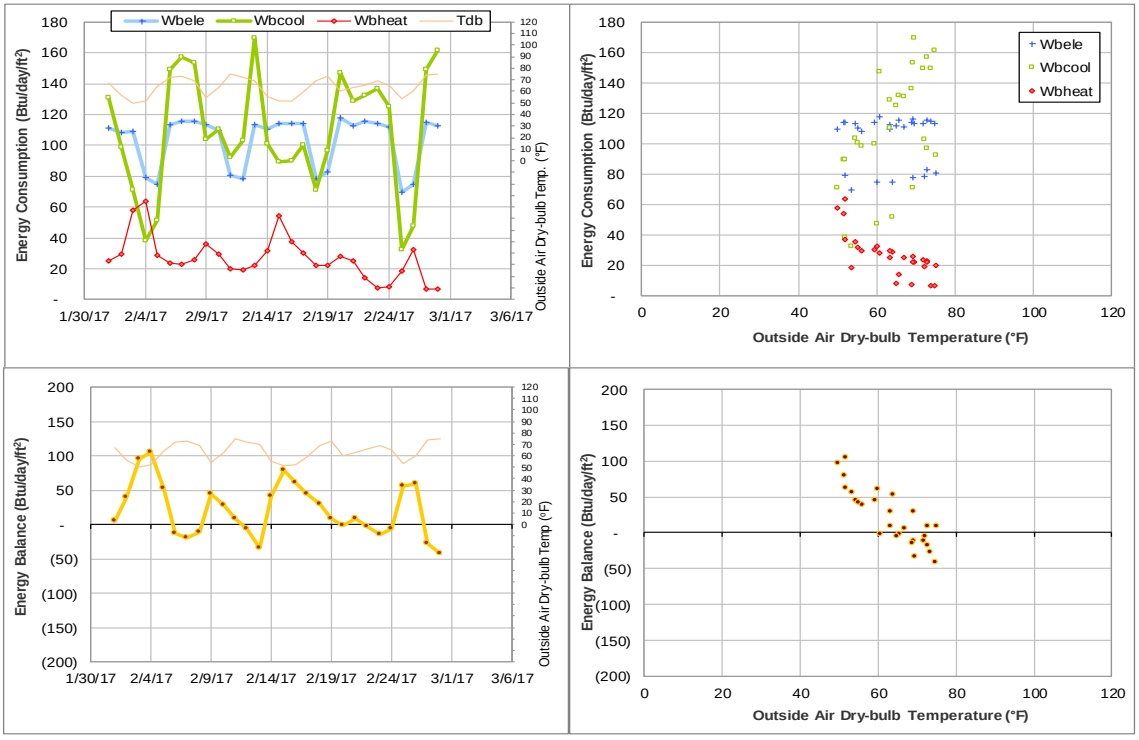



Figure IV-95 Thompson Hall TAMU BLDG # 483 Energy Balance Plot during February 2017

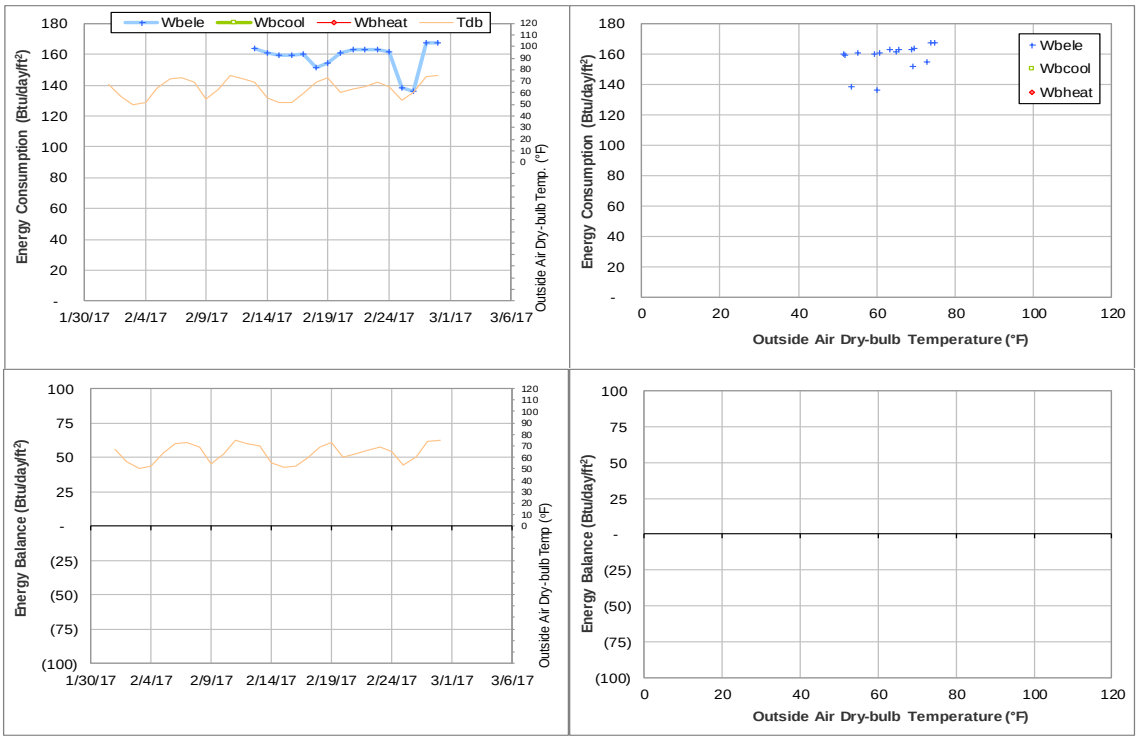



Figure IV-96 Chemistry Building TAMU BLDG # 484 Energy Balance Plot during February 2017

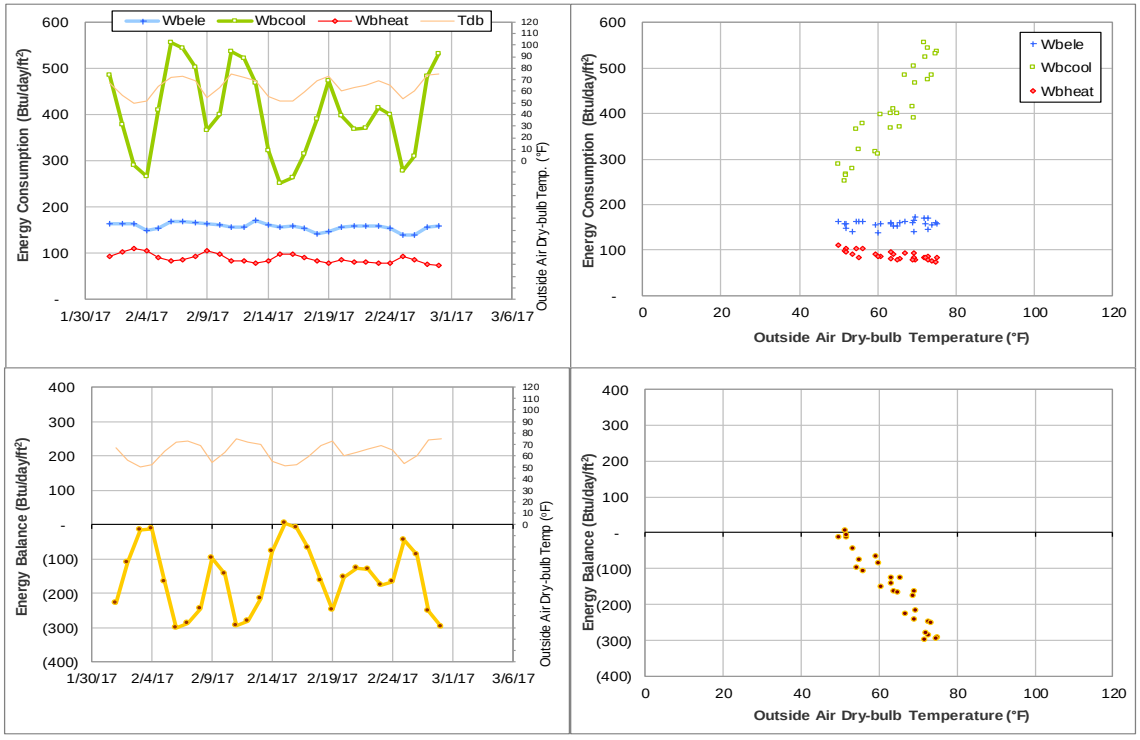



Figure IV-97 Halbouty Geosciences Building TAMU BLDG # 490 Energy Balance Plot during February 2017

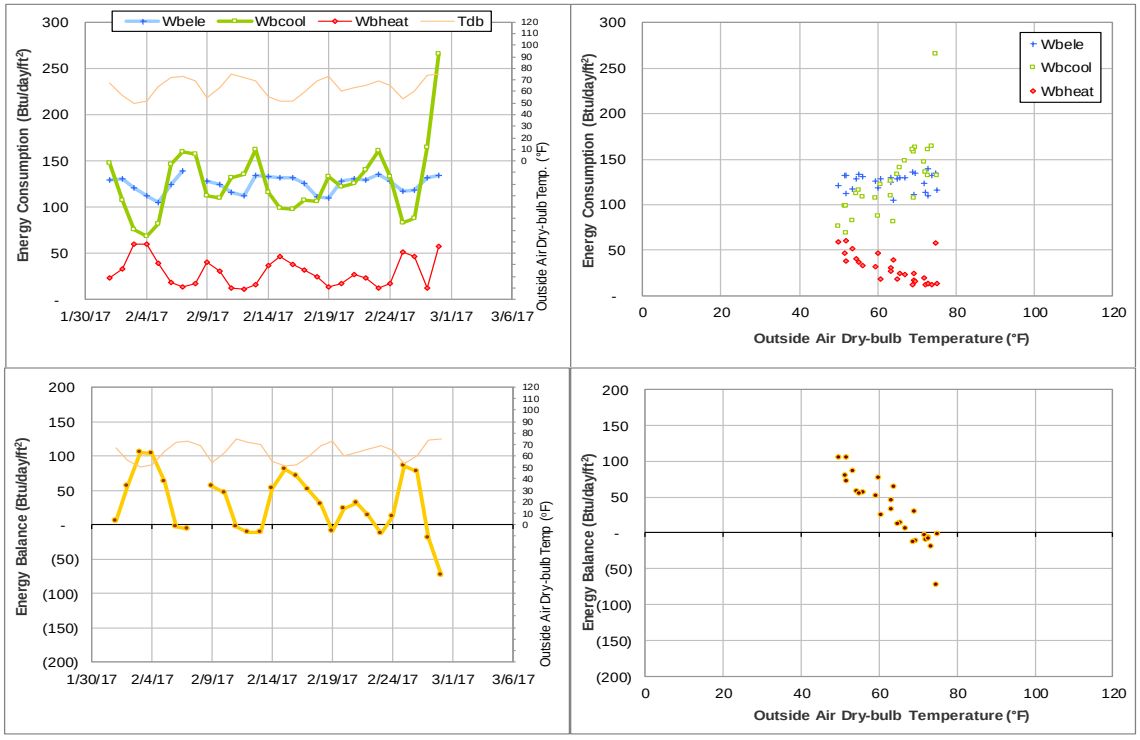



Figure IV-98 Civil Engineering Building TAMU BLDG # 492 Energy Balance Plot during February 2017

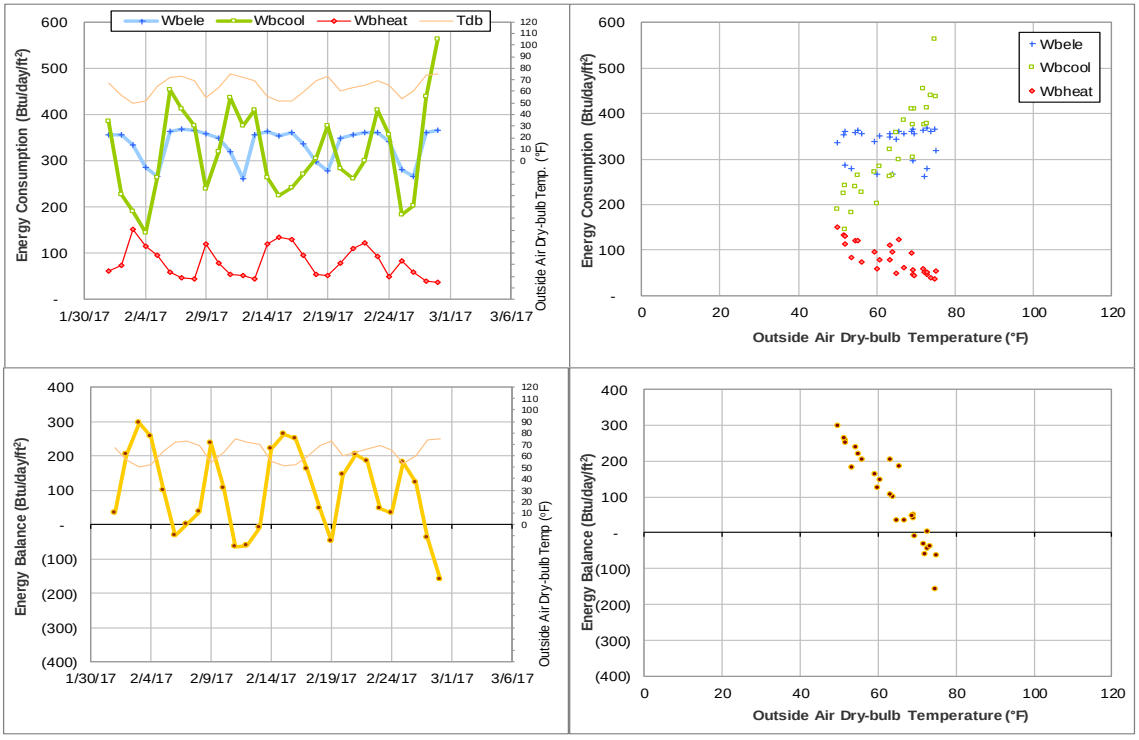



Figure IV-99 Sbisa Dining Hall TAMU BLDG # 495 Energy Balance Plot during February 2017

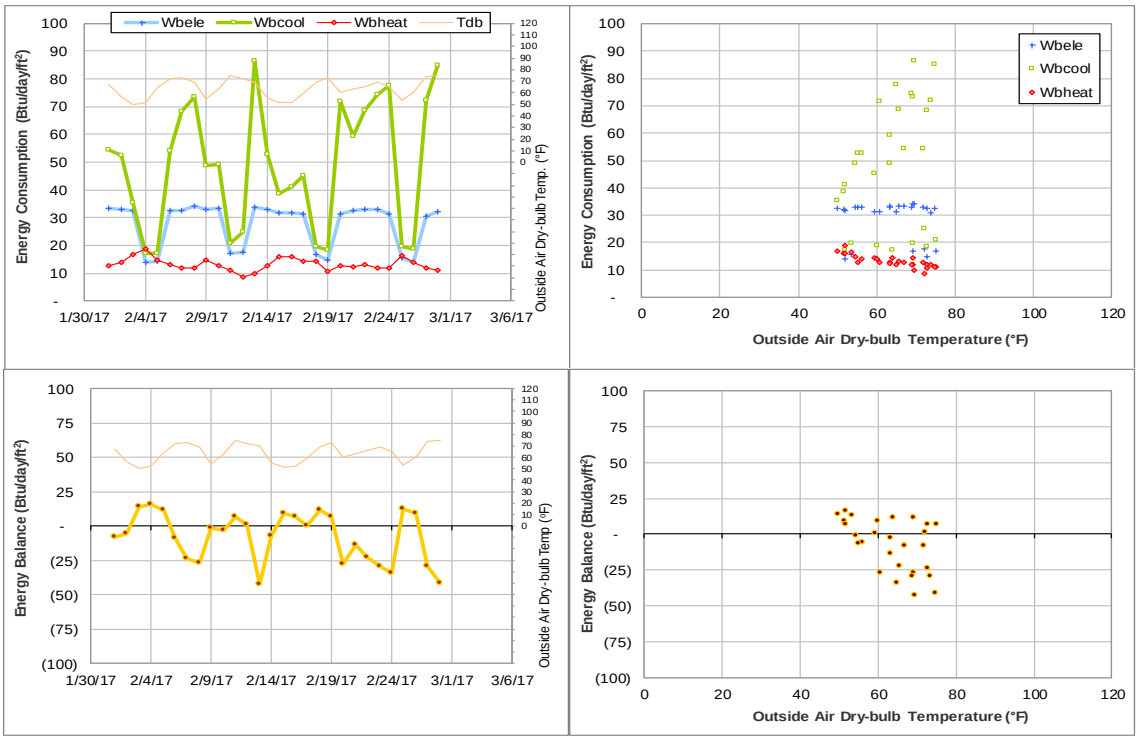



Figure IV-100 Utilities & Energy Services Central Office TAMU BLDG # 496 Energy Balance Plot during February 2017

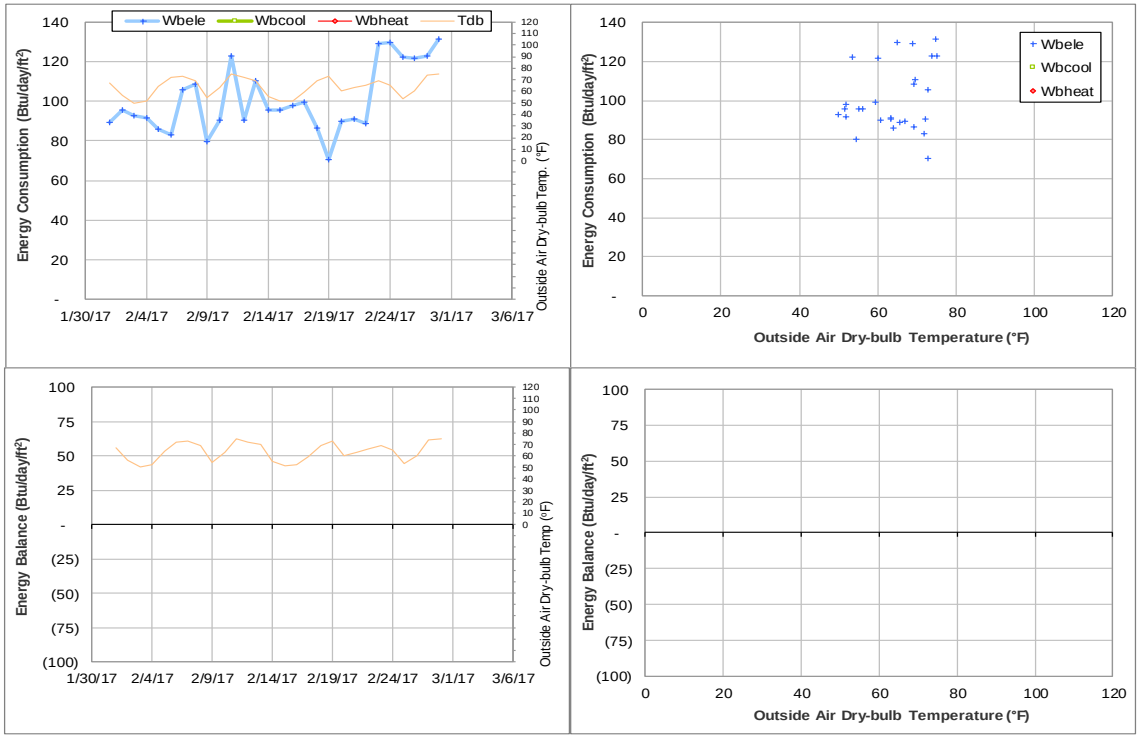



Figure IV-101 Concrete Materials Laboratory TAMU BLDG # 501 Energy Balance Plot during February 2017

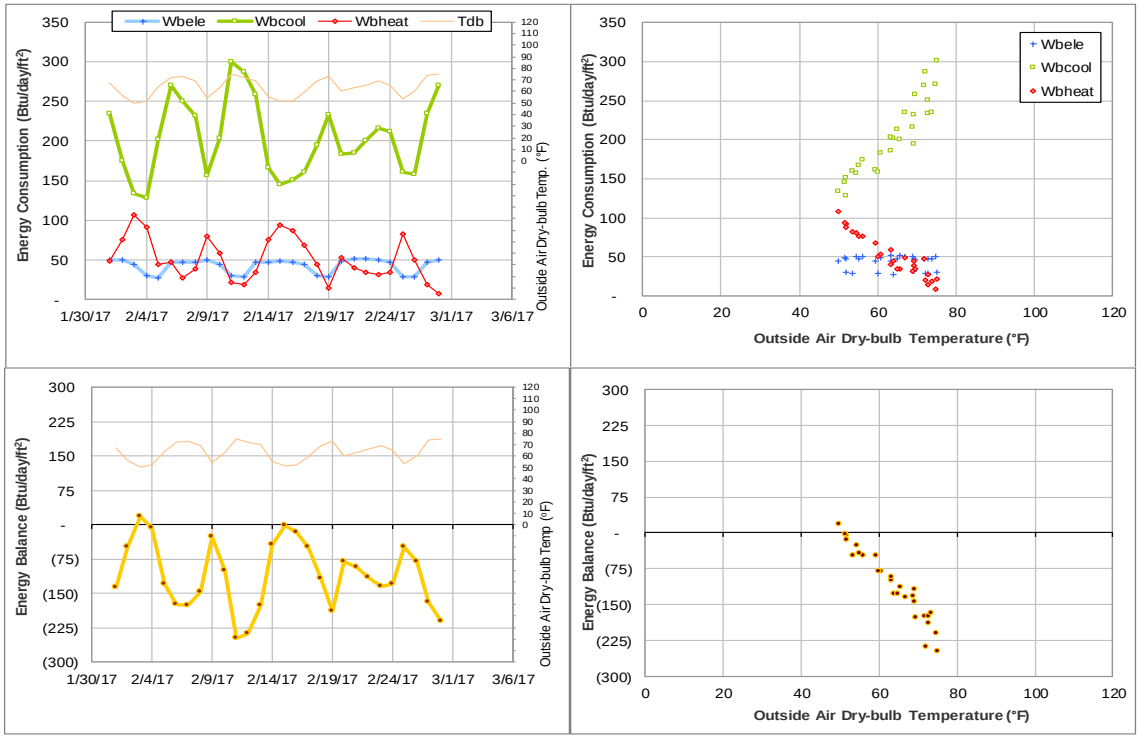



Figure IV-102 Nagle Hall TAMU BLDG # 506 Energy Balance Plot during February 2017

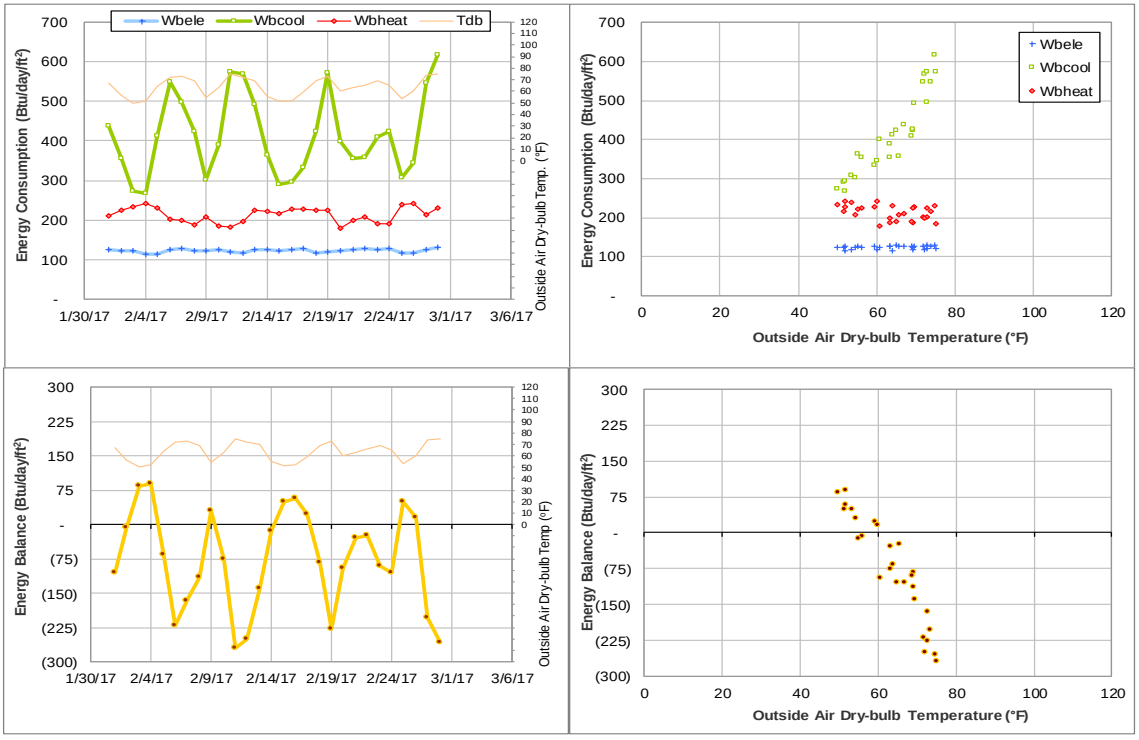



Figure IV-103 Veterinary Medical Science Building TAMU BLDG # 507 Energy Balance Plot during February 2017

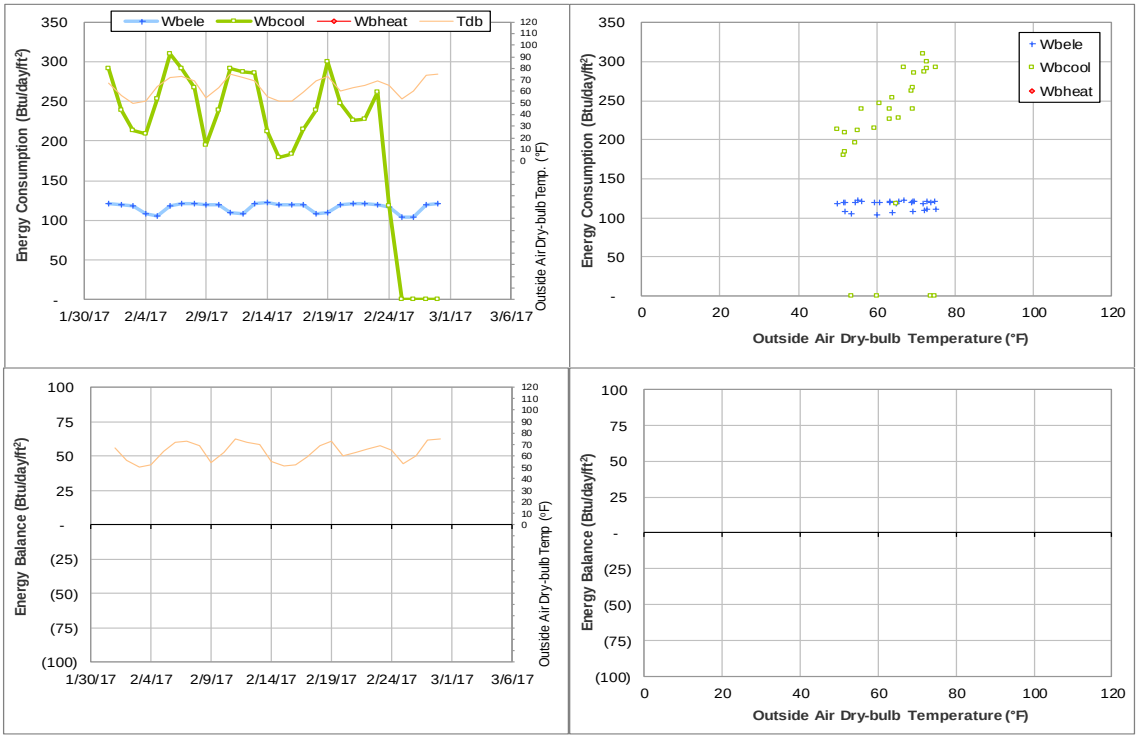



Figure IV-104 Veterinary Teaching Hospital and Med Adm TAMU BLDG # 508 and 1026 Energy Balance Plot during February 2017

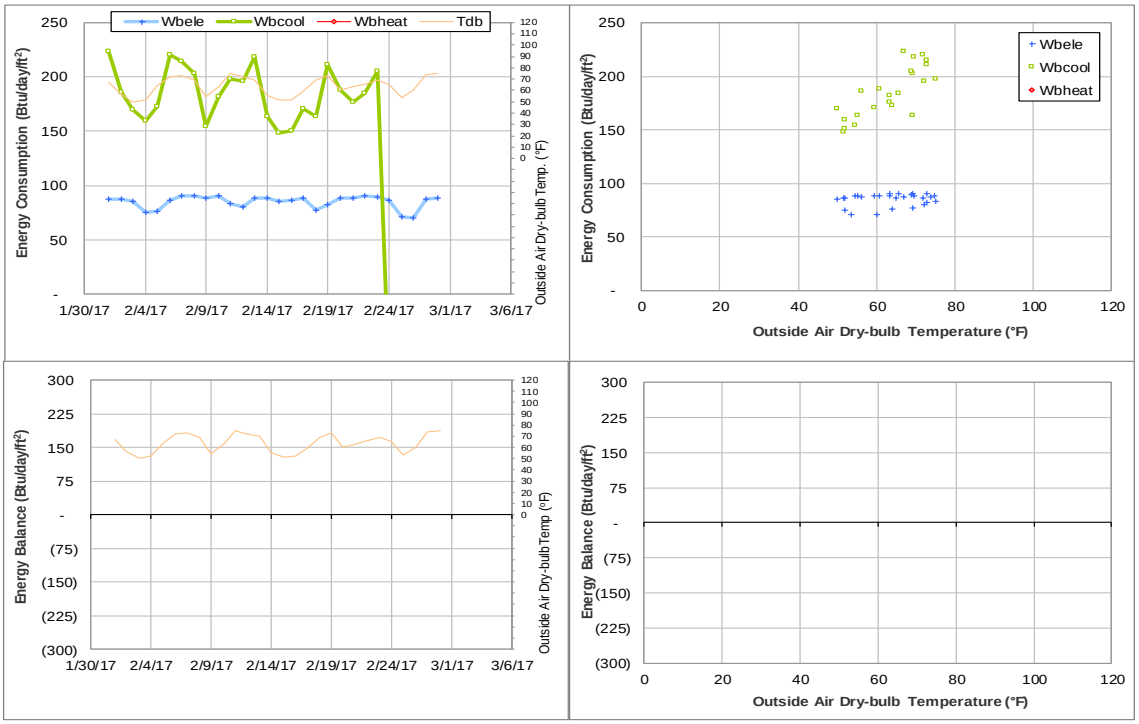



Figure IV-105 Veterinary Teaching Hospital TAMU BLDG # 508 Energy Balance Plot during February 2017

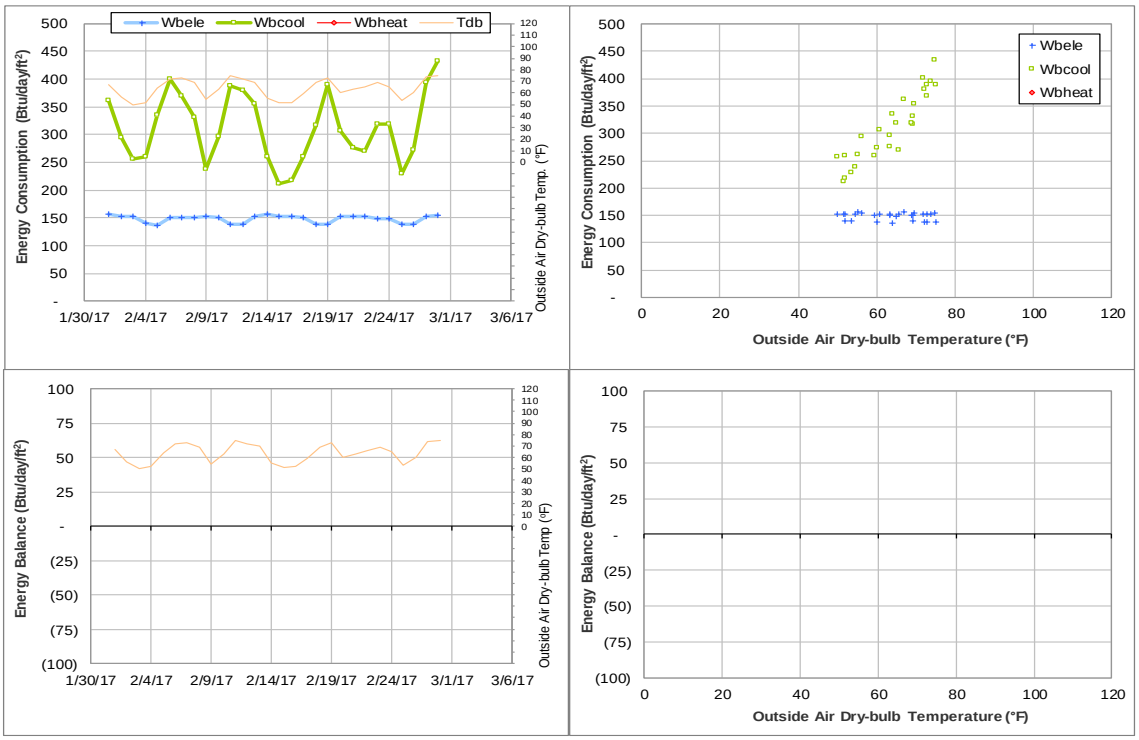



Figure IV-106 Veterinary Medicine Administration TAMU BLDG # 1026 Energy Balance Plot during February 2017

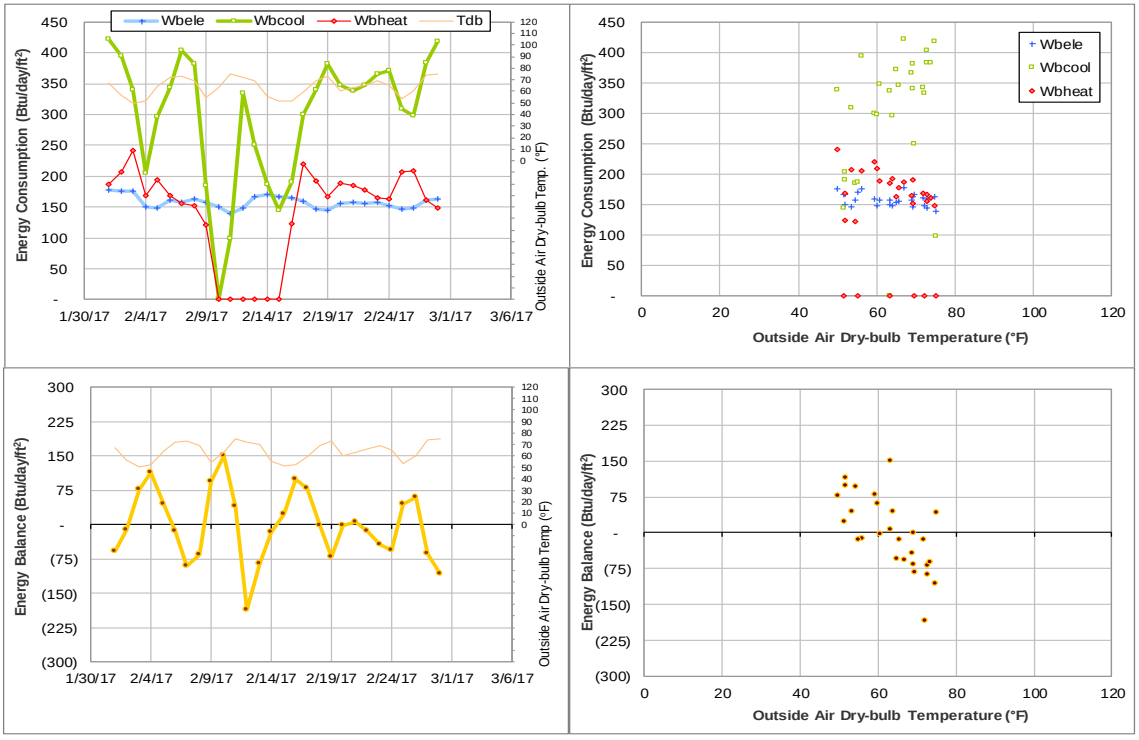



Figure IV-107 Heep Laboratory Building TAMU BLDG # 511 Energy Balance Plot during February 2017

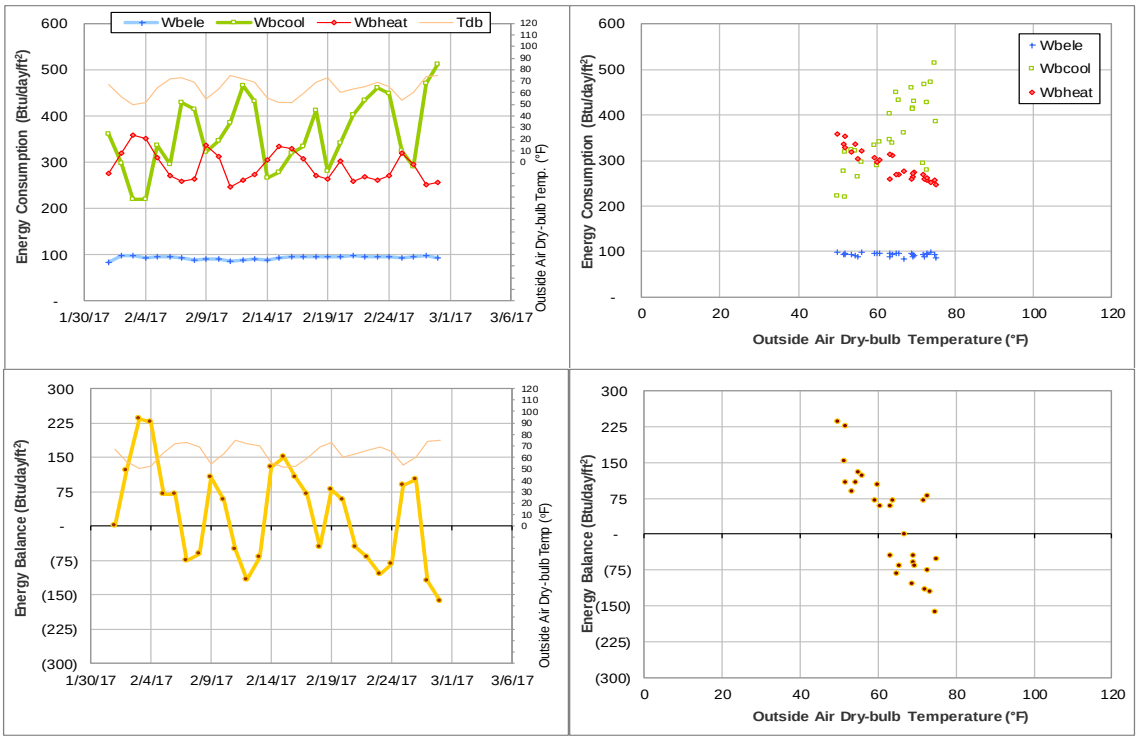



Figure IV-108 All Faiths Chapel TAMU BLDG # 512 Energy Balance Plot during February 2017

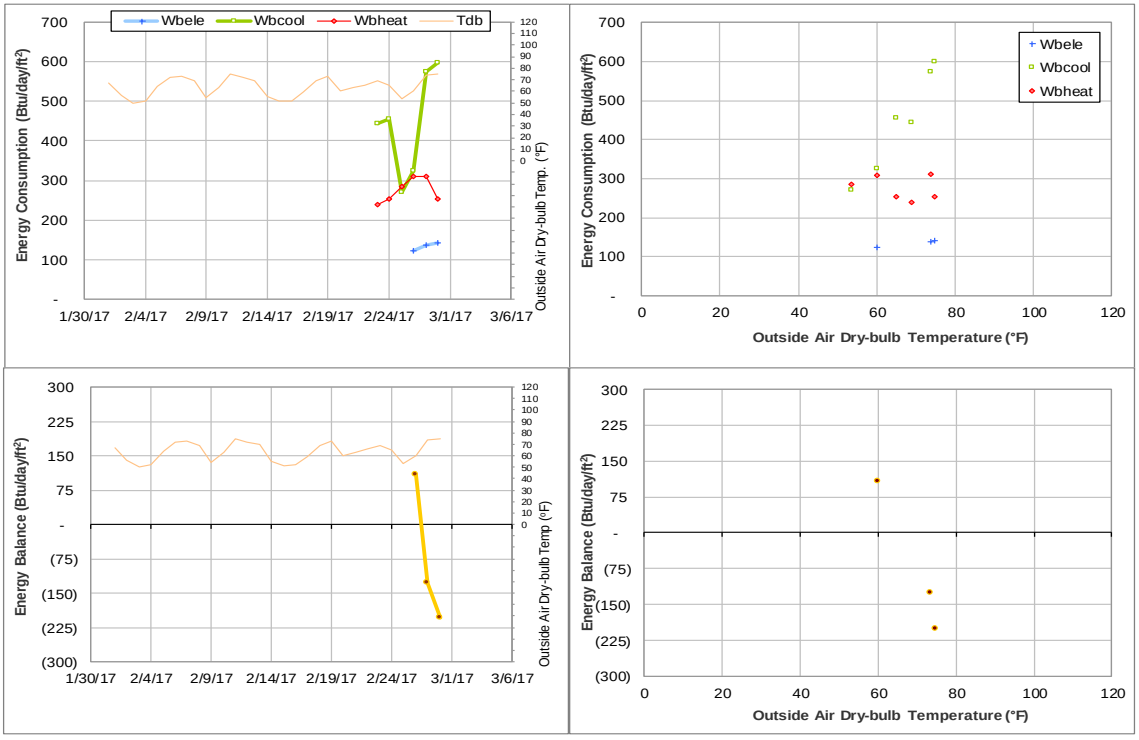



Figure IV-109 Doherty Building TAMU BLDG # 513 Energy Balance Plot during February 2017

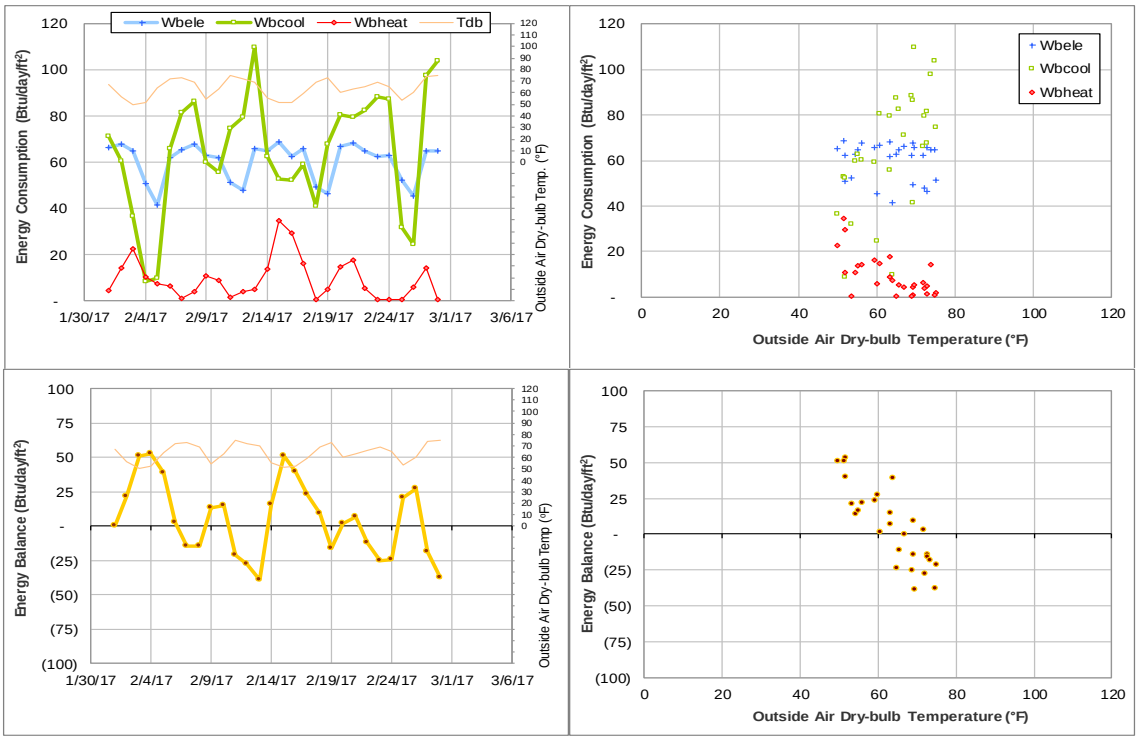



Figure IV-110 Munnerlyn Astronomy & Space Sciences Engineering TAMU BLDG # 514 Energy Balance Plot during February 2017

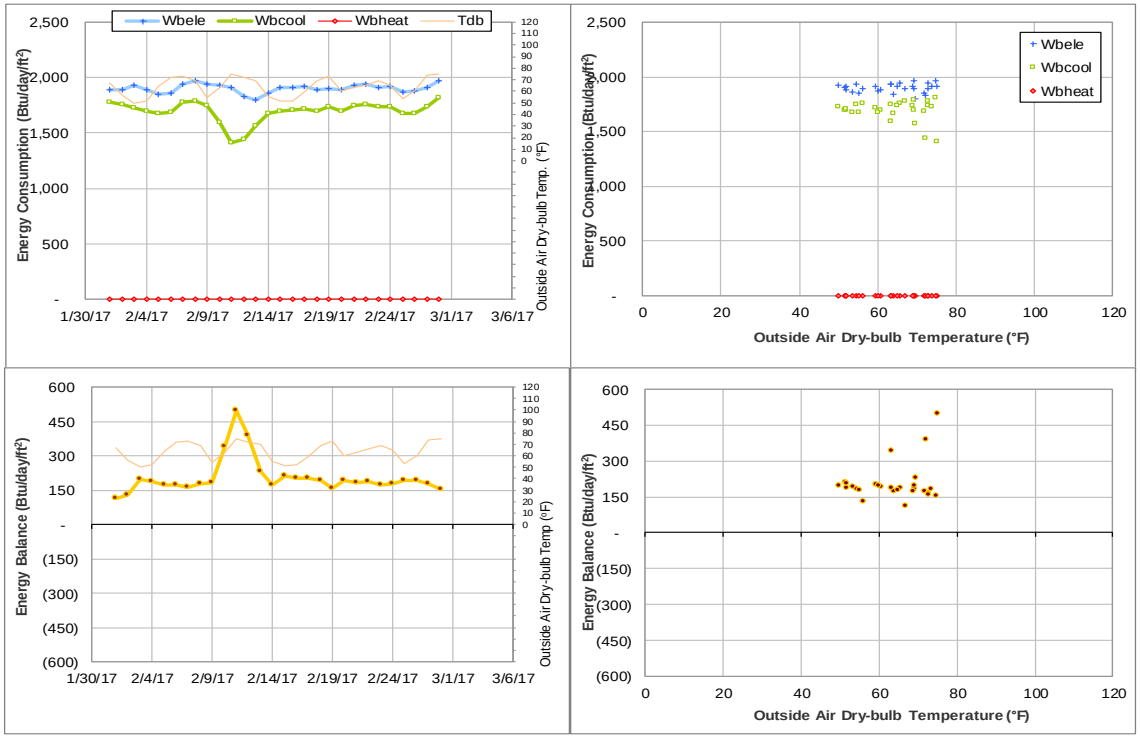



Figure IV-111 Computing Services Center TAMU BLDG # 516 Energy Balance Plot during February 2017

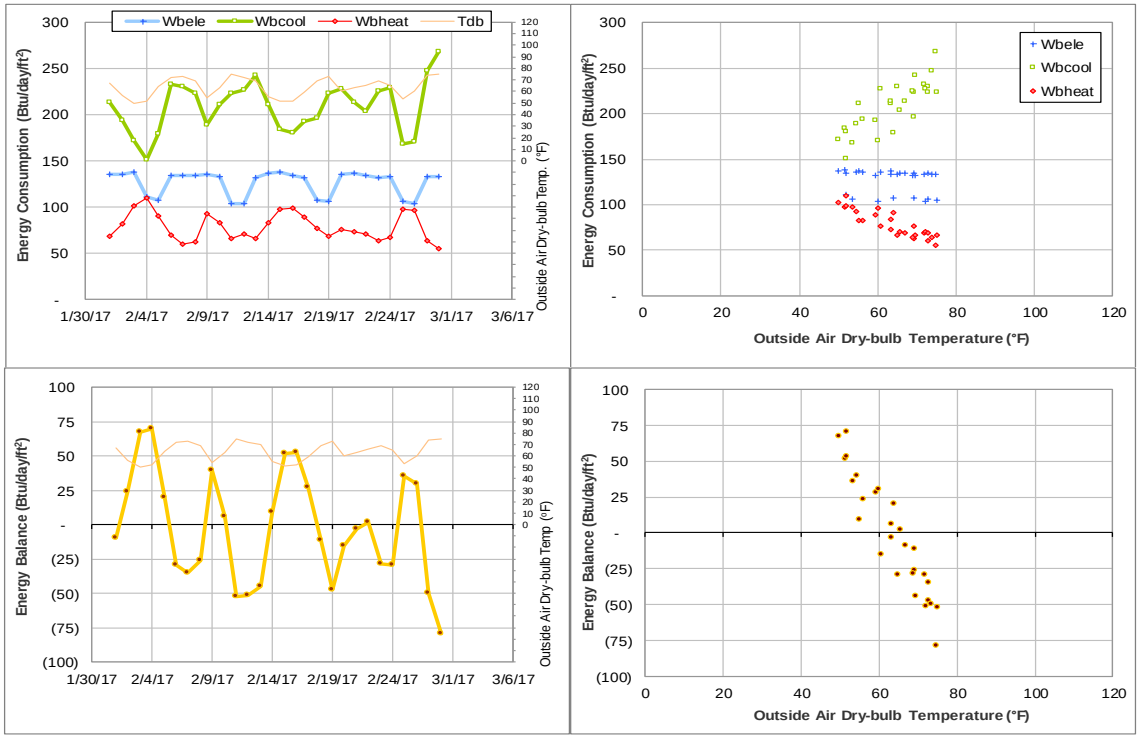



Figure IV-112 Beutel Health Center TAMU BLDG # 520 Energy Balance Plot during February 2017

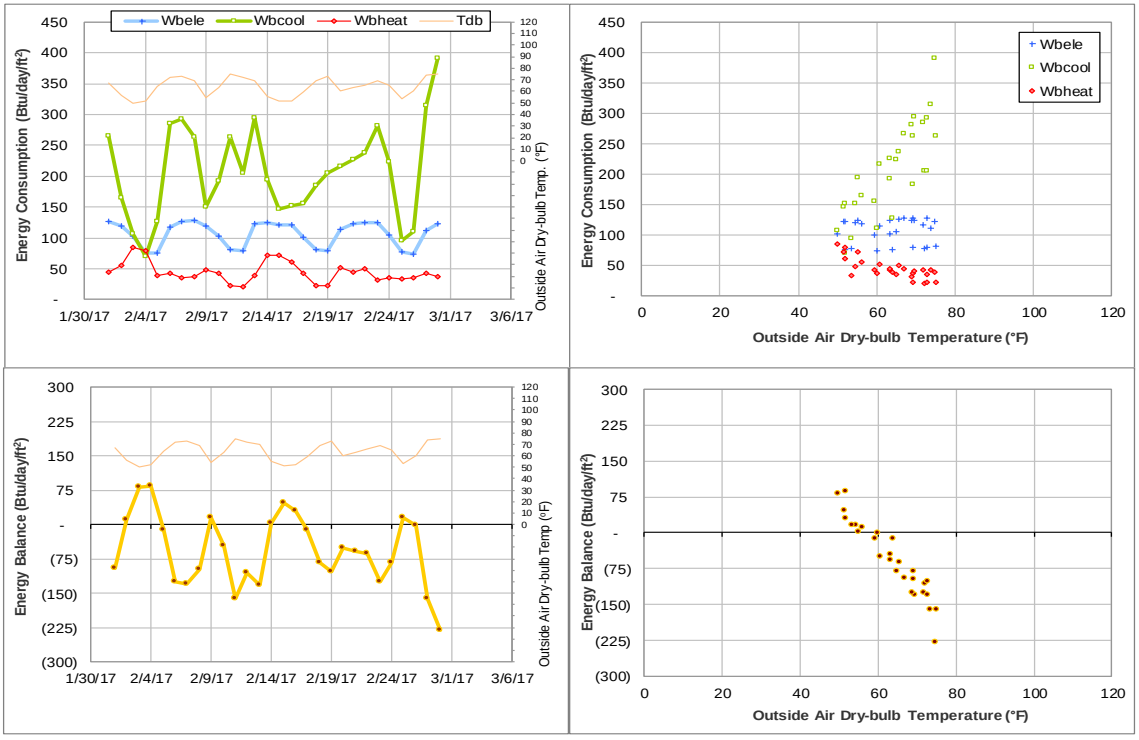



Figure IV-113 Heldenfels Hall TAMU BLDG # 521 Energy Balance Plot during February 2017

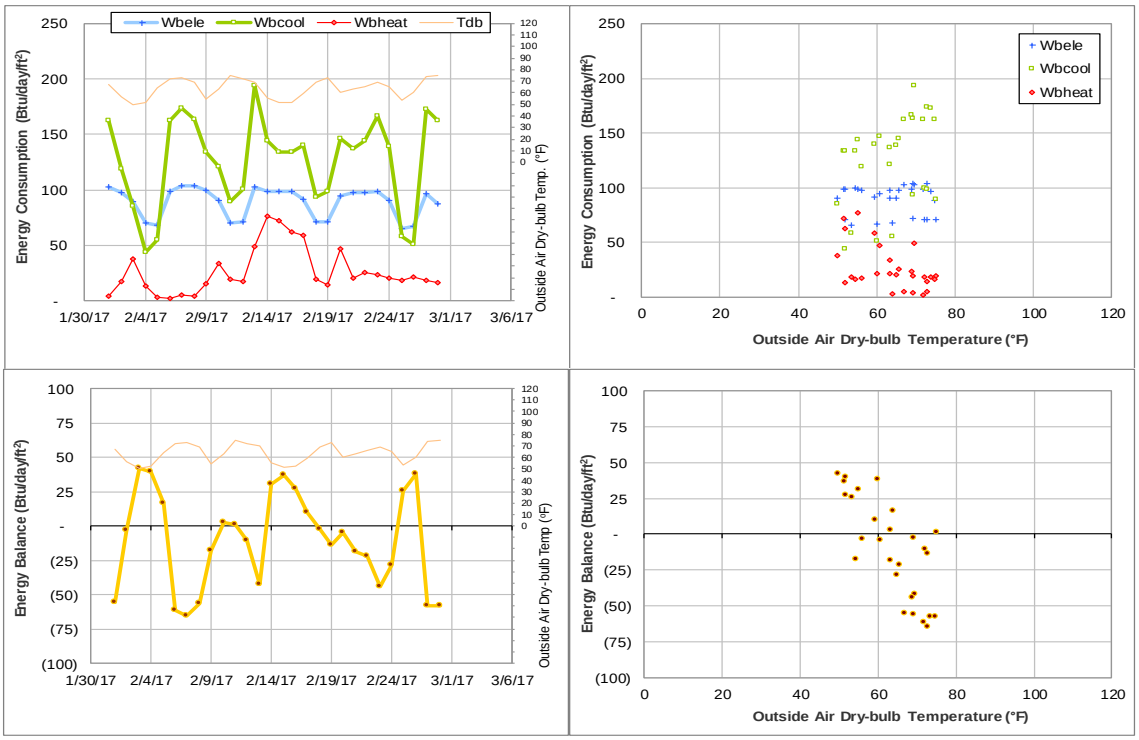



Figure IV-114 Blocker building TAMU BLDG # 524 Energy Balance Plot during February 2017

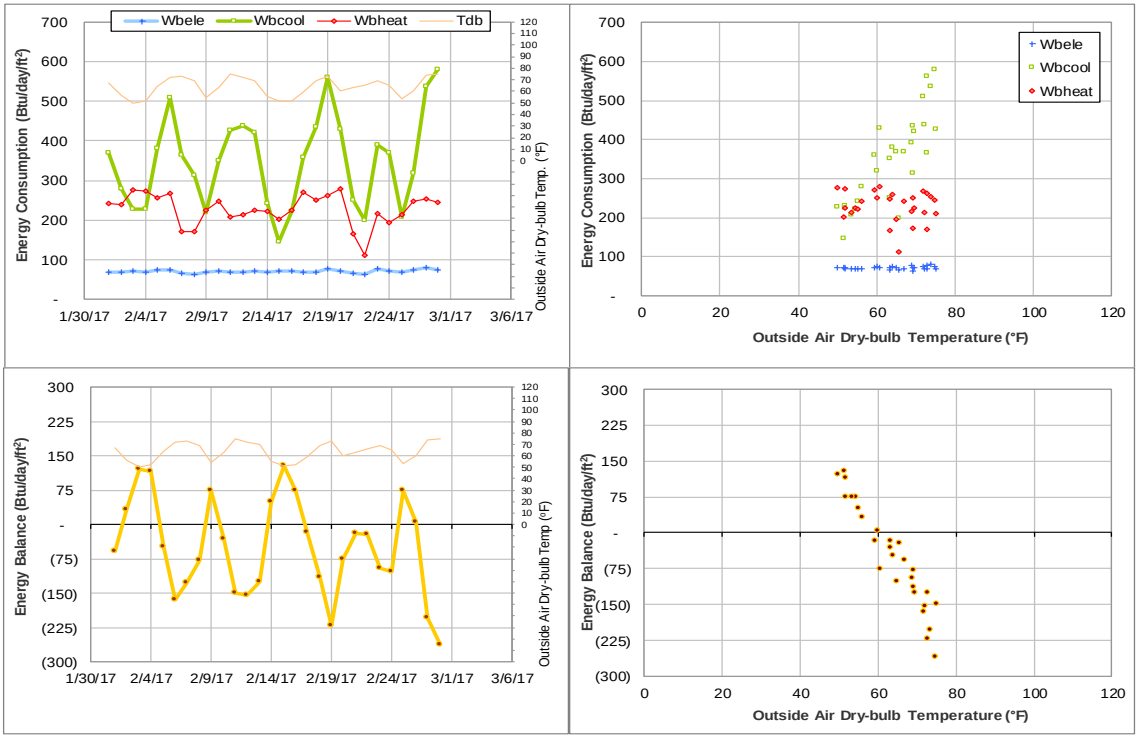



Figure IV-115 Clements Residence Hall TAMU BLDG # 548 Energy Balance Plot during February 2017

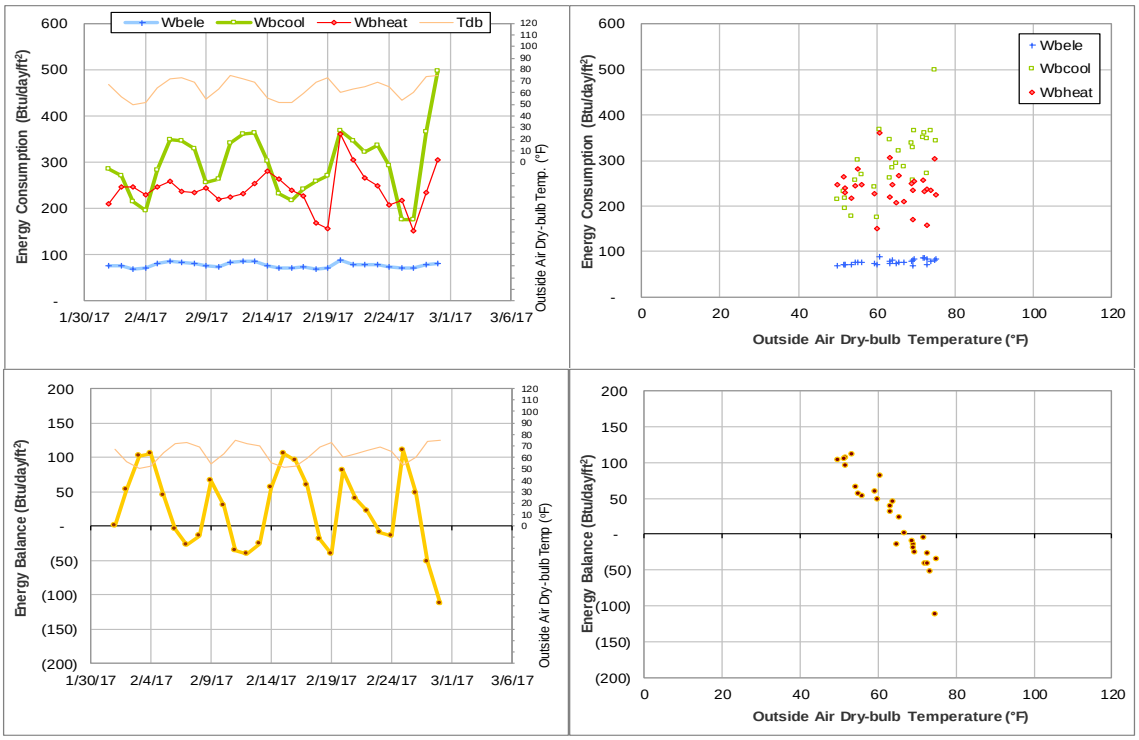



Figure IV-116 Haas Residence Hall TAMU BLDG # 549 Energy Balance Plot during February 2017

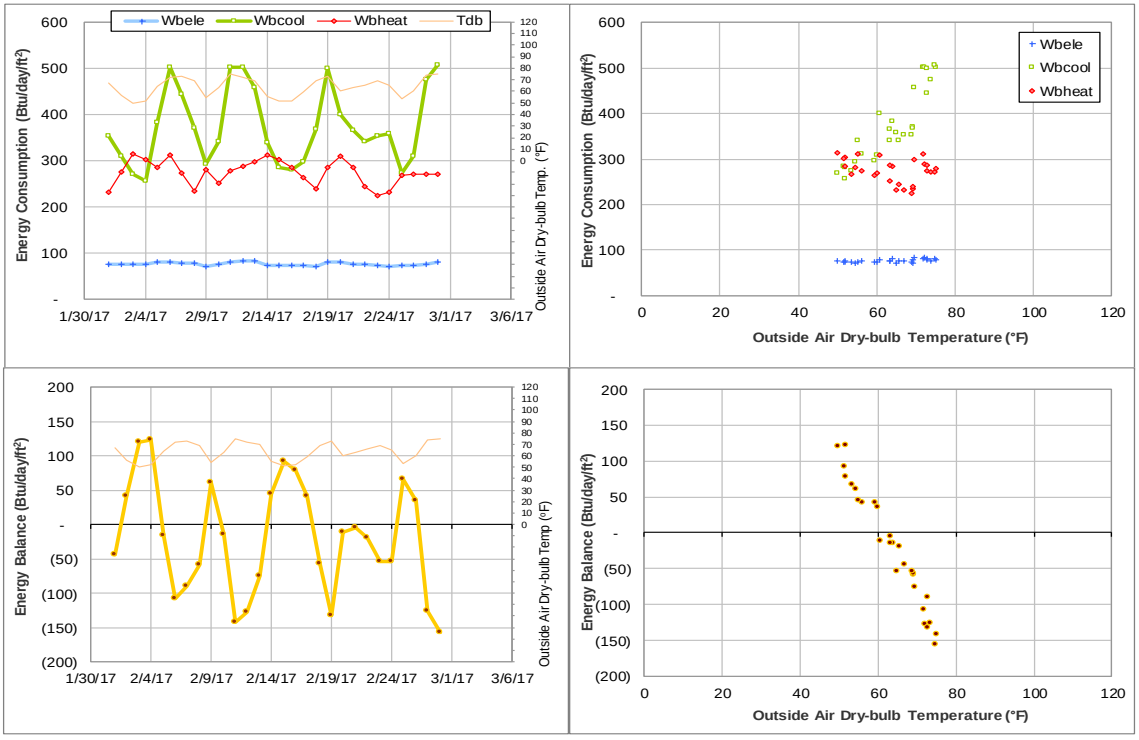



Figure IV-117 McFadden Residence Hall TAMU BLDG # 550 Energy Balance Plot during February 2017

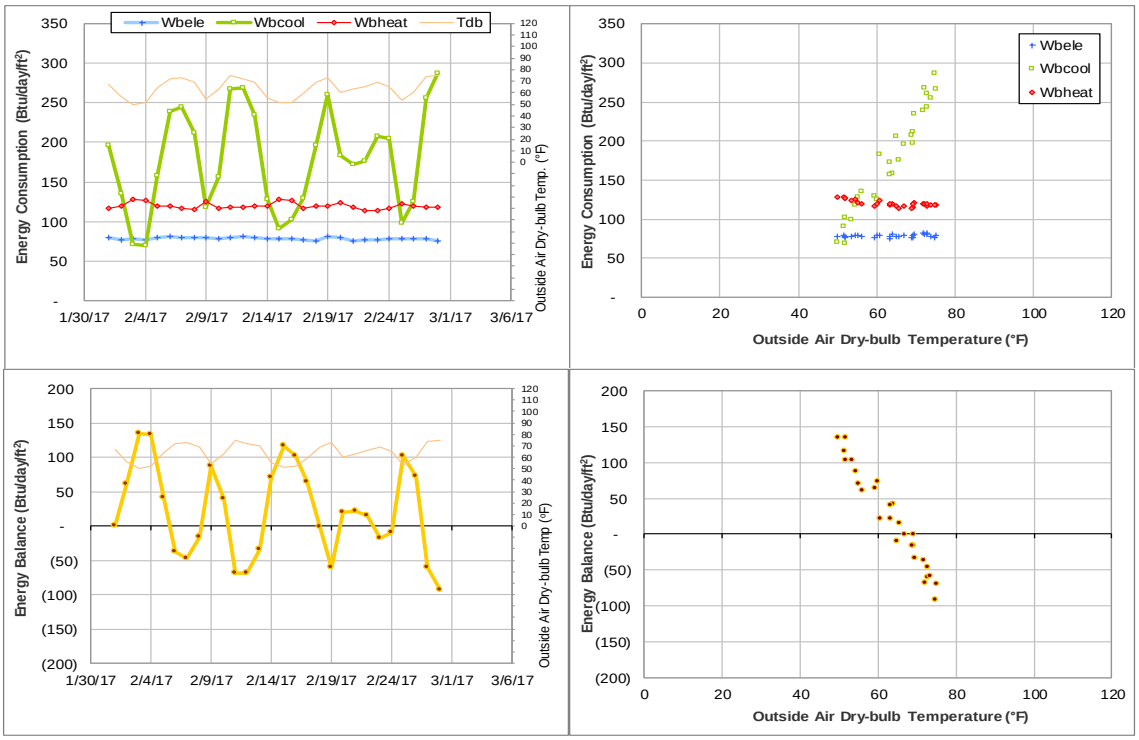



Figure IV-118 Neeley Residence Hall TAMU BLDG # 652 Energy Balance Plot during February 2017

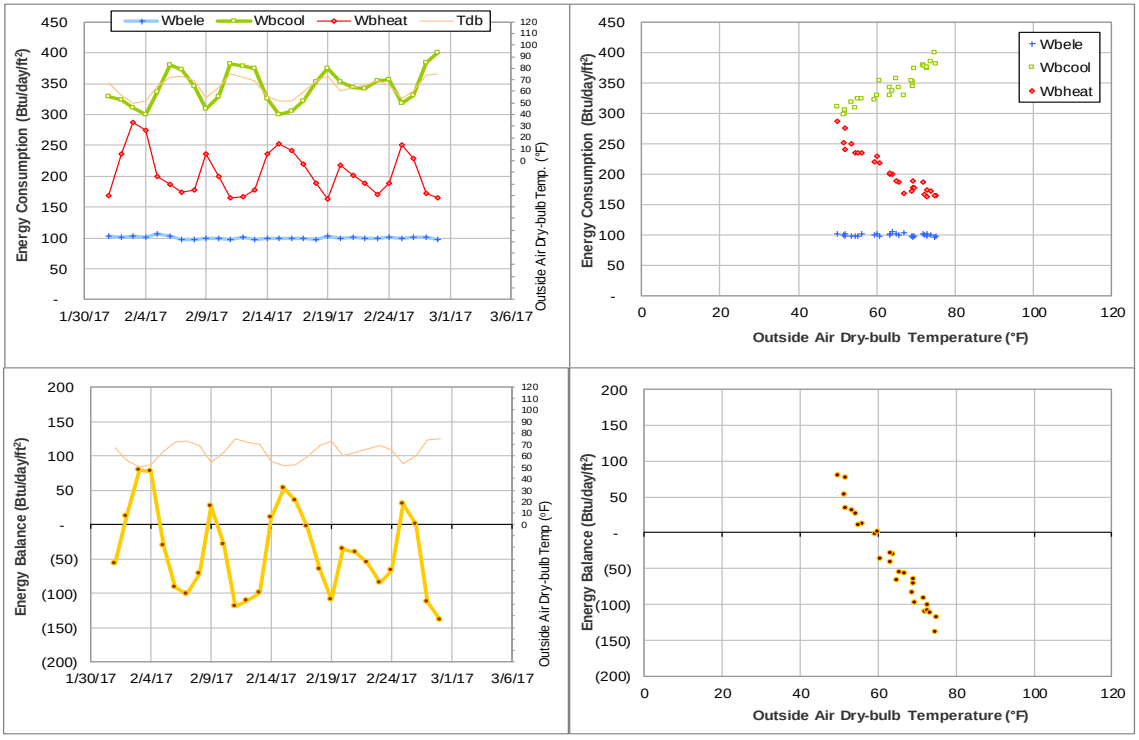



Figure IV-119 Hobby Residence Hall TAMU BLDG # 653 Energy Balance Plot during February 2017

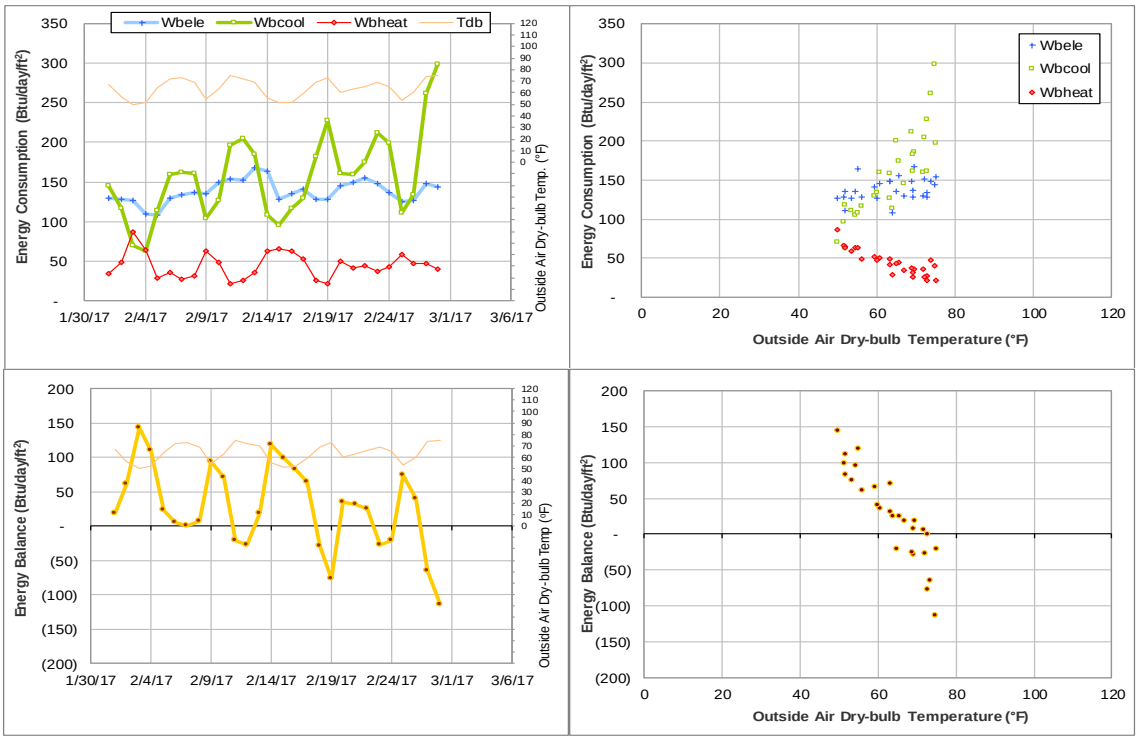



Figure IV-120 Wisenbaker Engineering Research Center TAMU BLDG # 682 Energy Balance Plot during February 2017

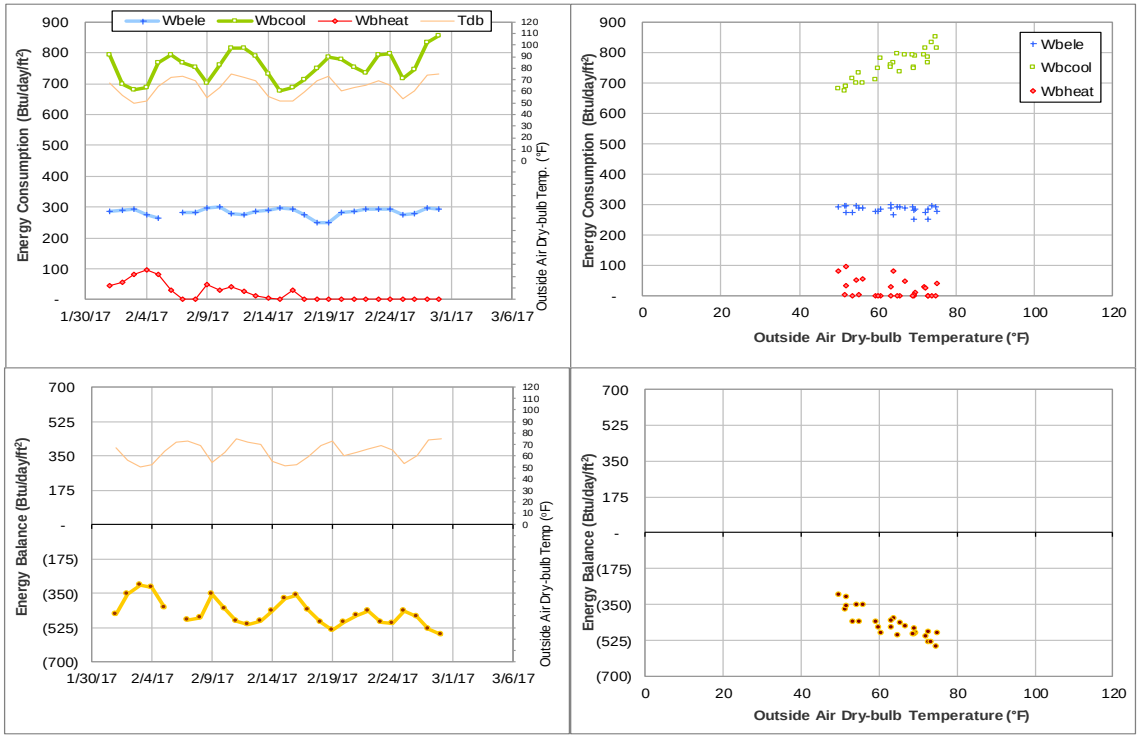



Figure IV-121 McNew Laboratory TAMU BLDG # 740 Energy Balance Plot during February 2017

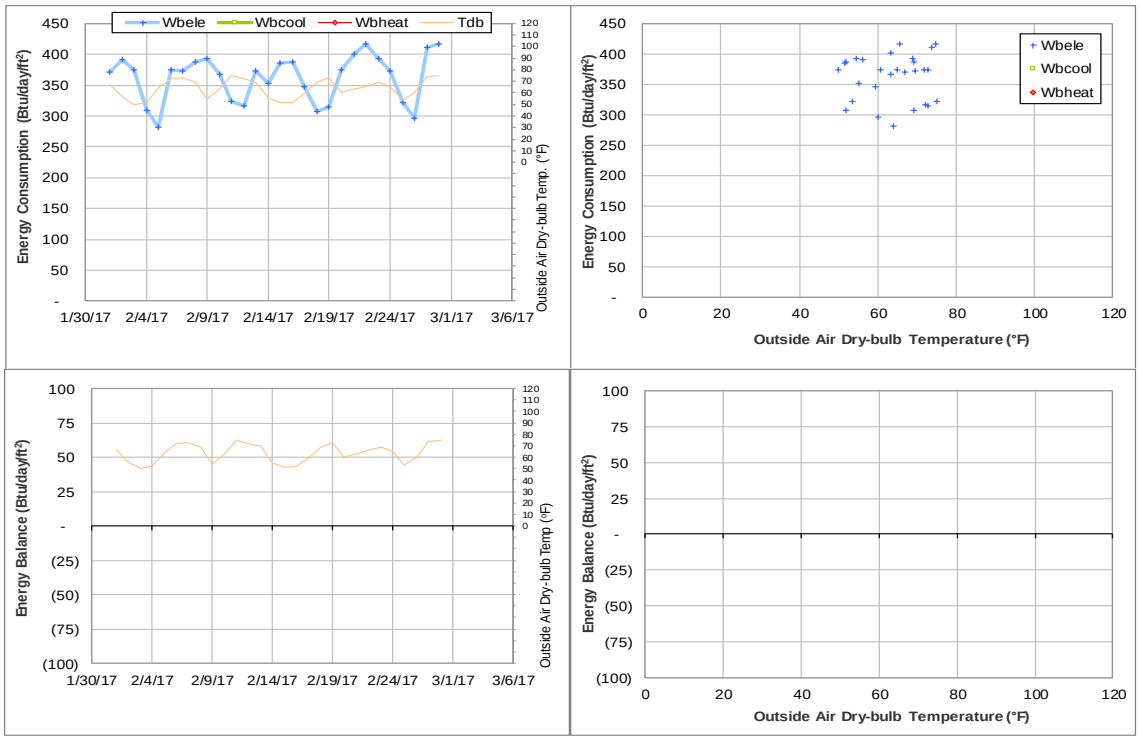



Figure IV-122 Soil Testing Labs TAMU BLDG # 806 Energy Balance Plot during February 2017

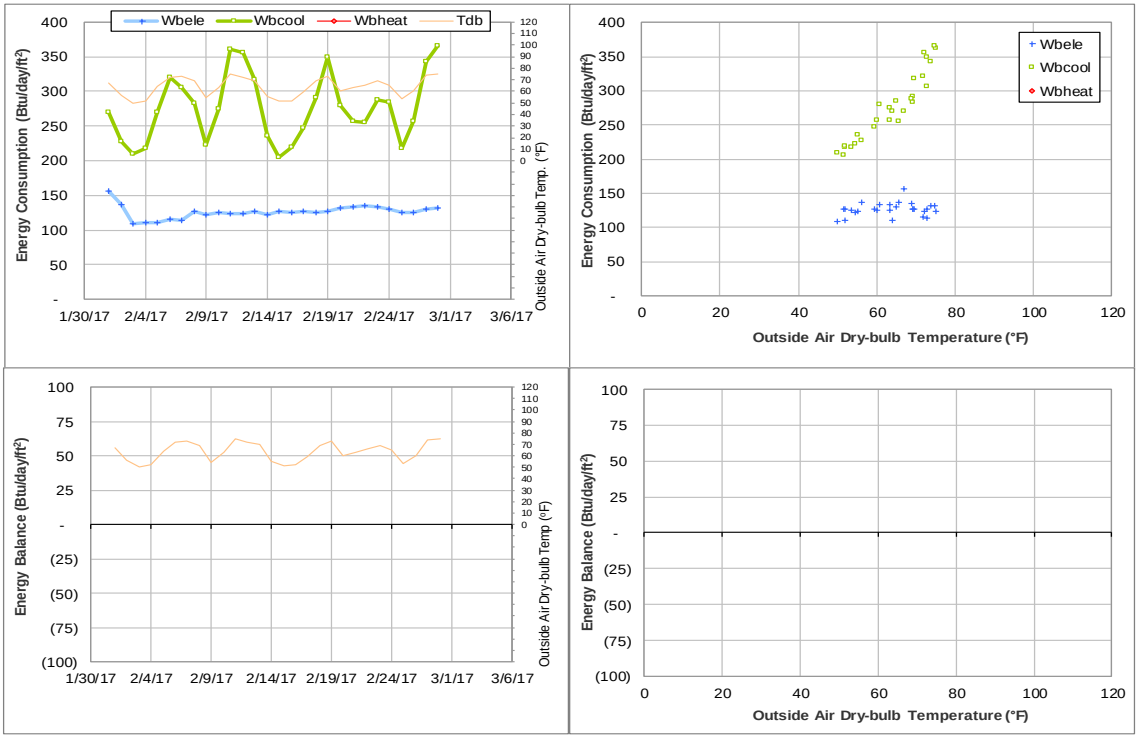



Figure IV-123 Entomology Research Lab TAMU BLDG # 815 Energy Balance Plot during February 2017

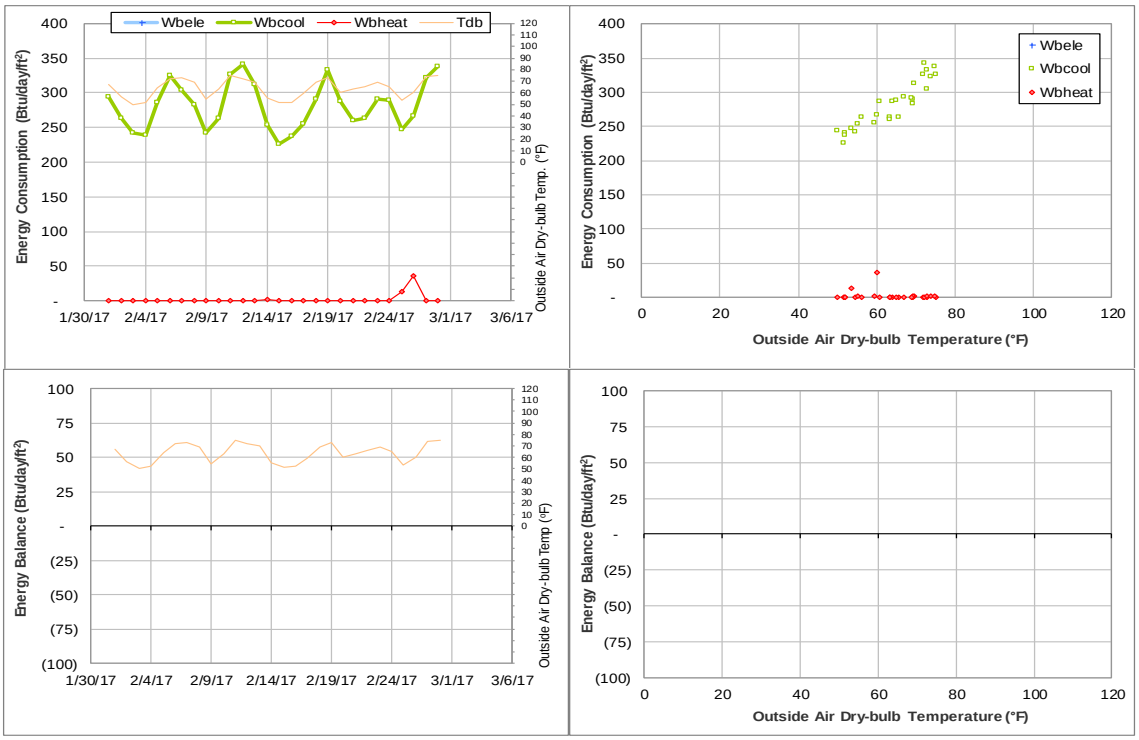



Figure IV-124 TVMC-Small Animal Building TAMU BLDG # 880 Energy Balance Plot during February 2017

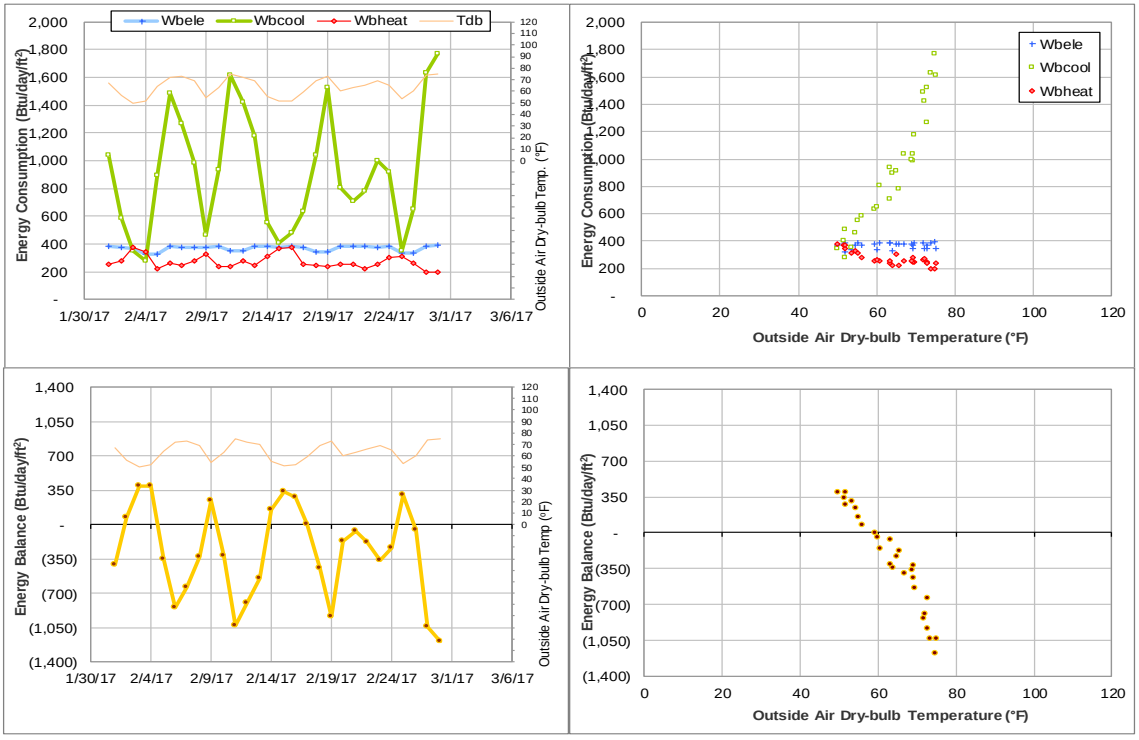



Figure IV-125 Laboratory Animal Care Building TAMU BLDG # 972 Energy Balance Plot during February 2017

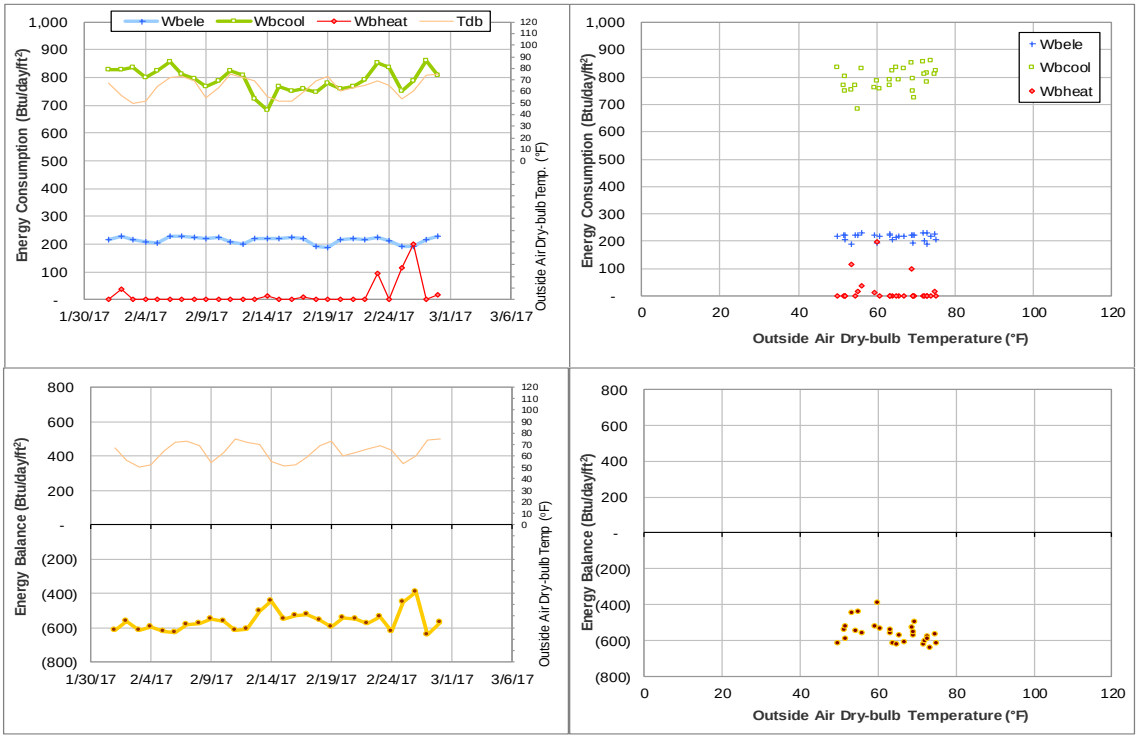



Figure IV-126 Vivarium III TAMU BLDG # 1020 Energy Balance Plot during February 2017

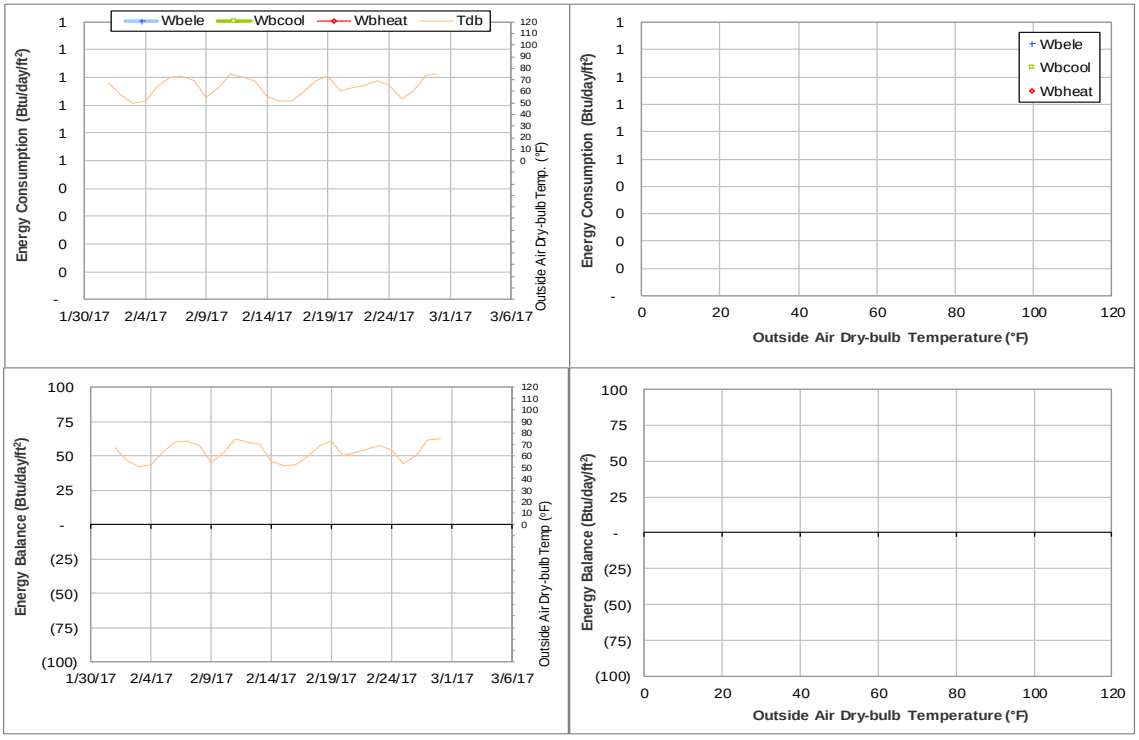



Figure IV-127 Texas Vet Med Diagnostic Lab TAMU BLDG # 1041 Energy Balance Plot during February 2017

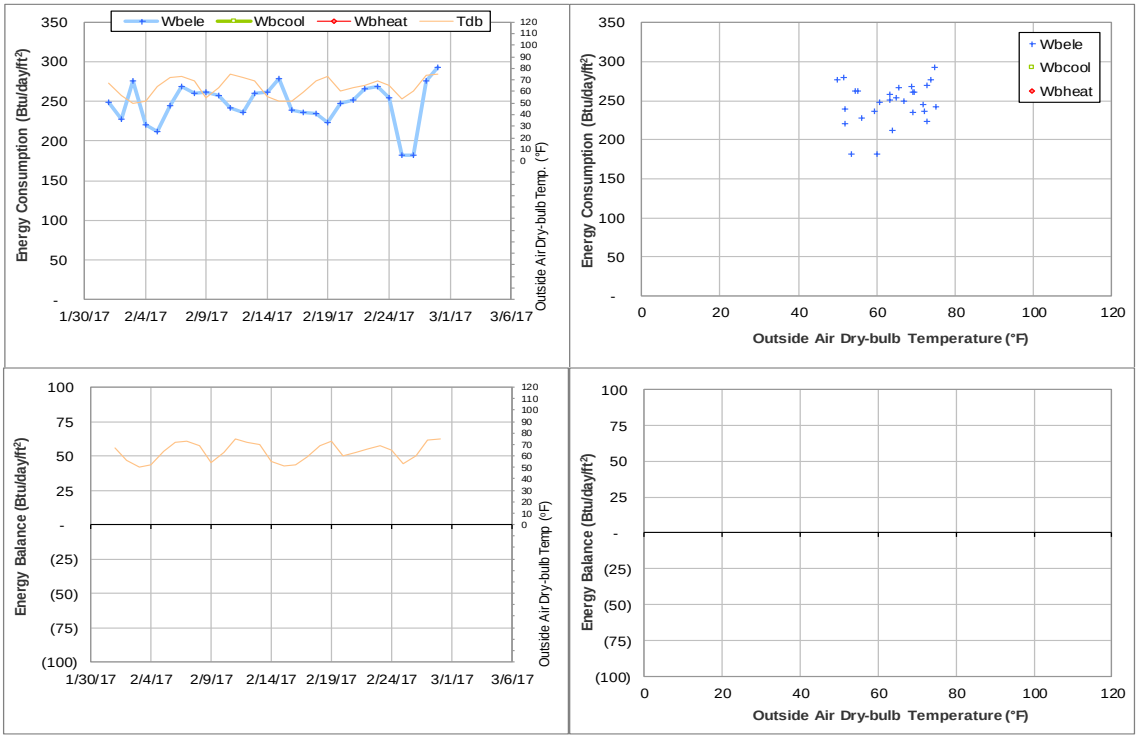



Figure IV-128 Forest Science Laboratory Building TAMU BLDG # 1042 Energy Balance Plot during February 2017

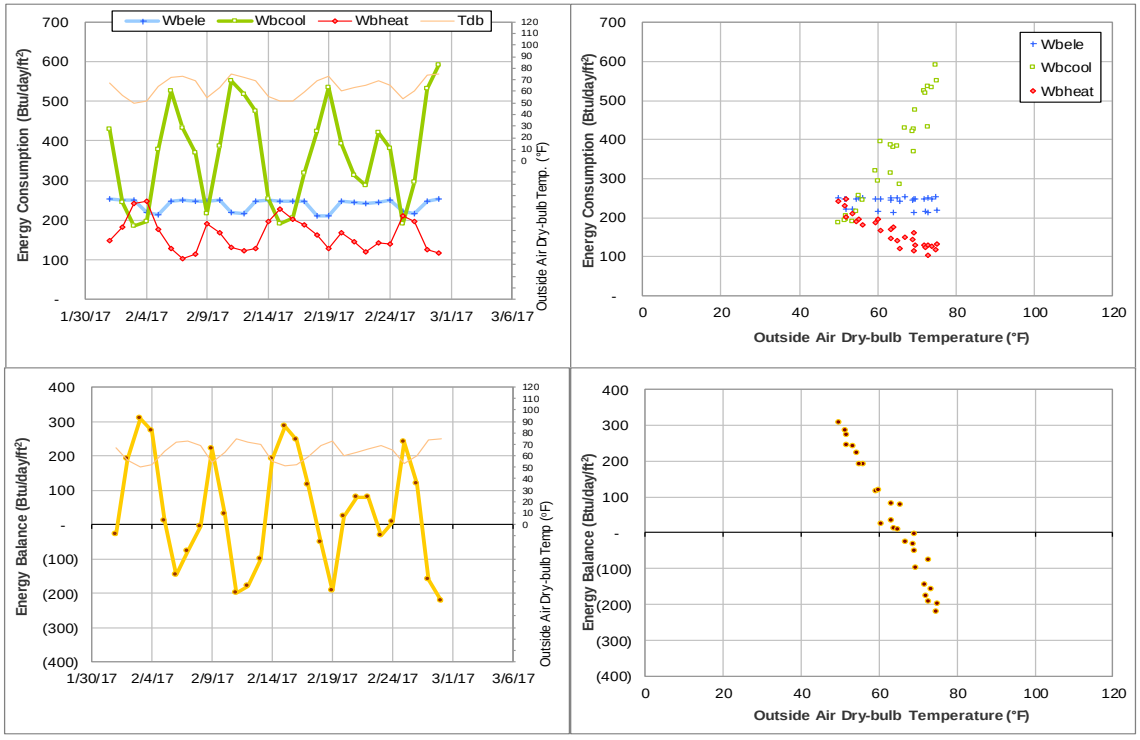



Figure IV-129 Veterinary Small Animal Hospital TAMU BLDG # 1085 Energy Balance Plot during February 2017

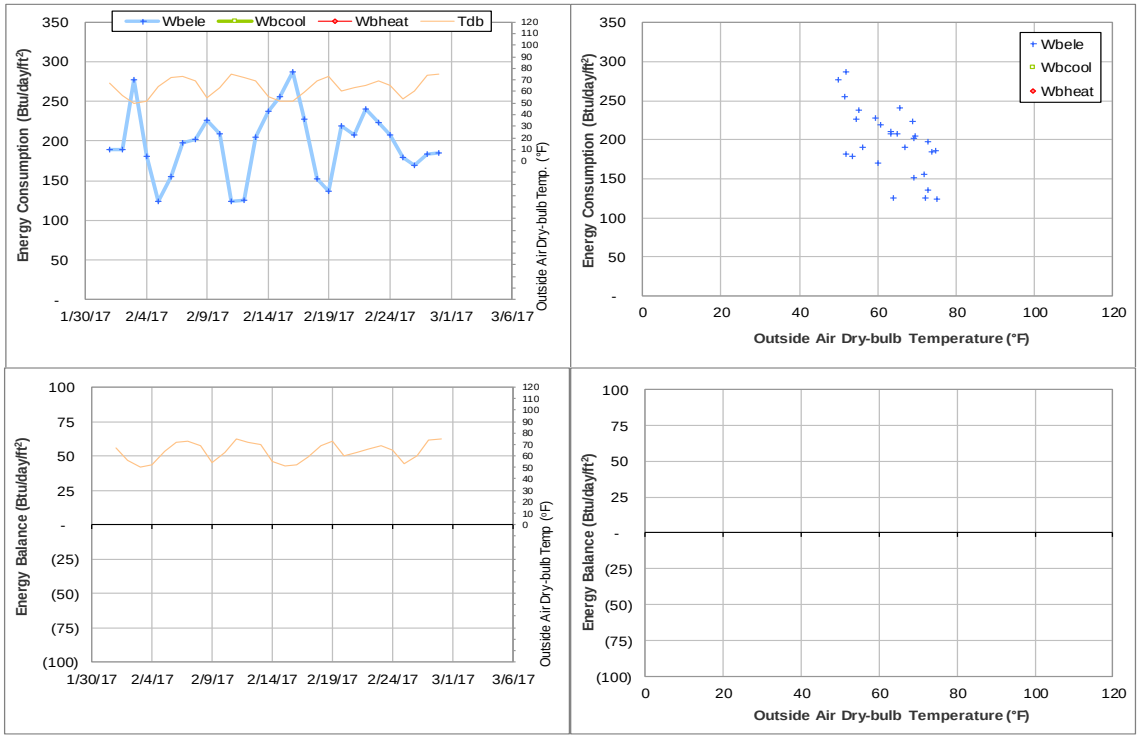



Figure IV-130 Utilities Energy Office Annex TAMU BLDG # 1089 Energy Balance Plot during February 2017

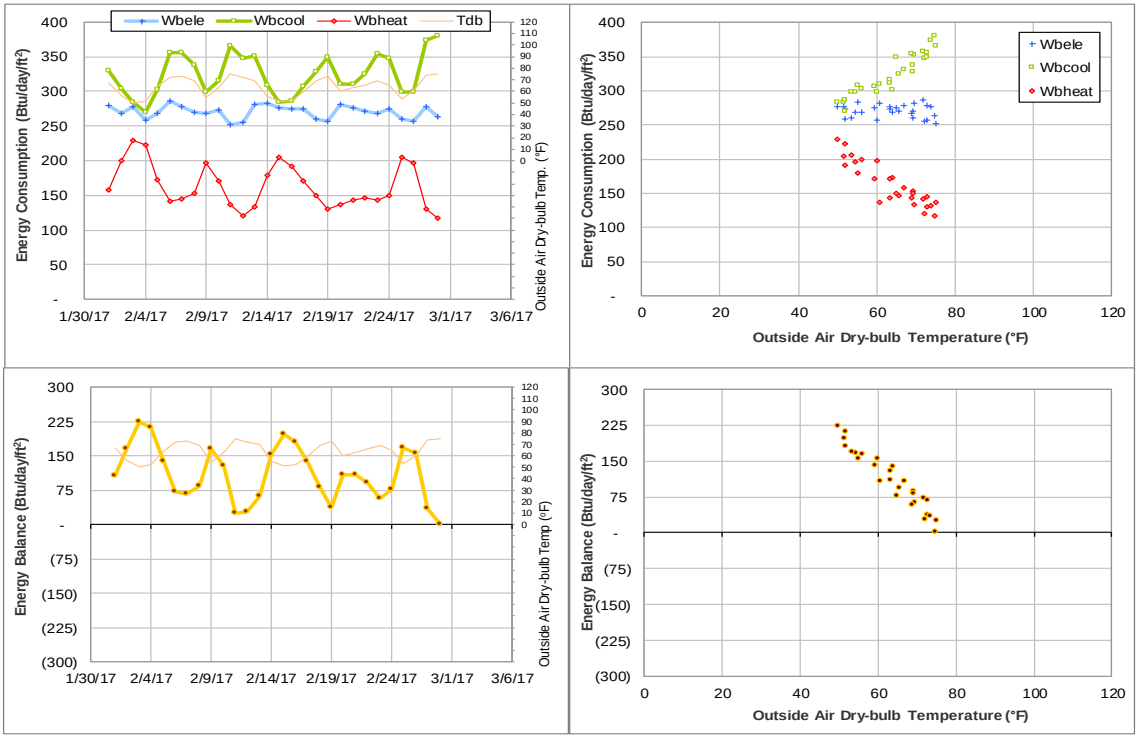



Figure IV-131 Biological Control Facility TAMU BLDG # 1146 Energy Balance Plot during February 2017

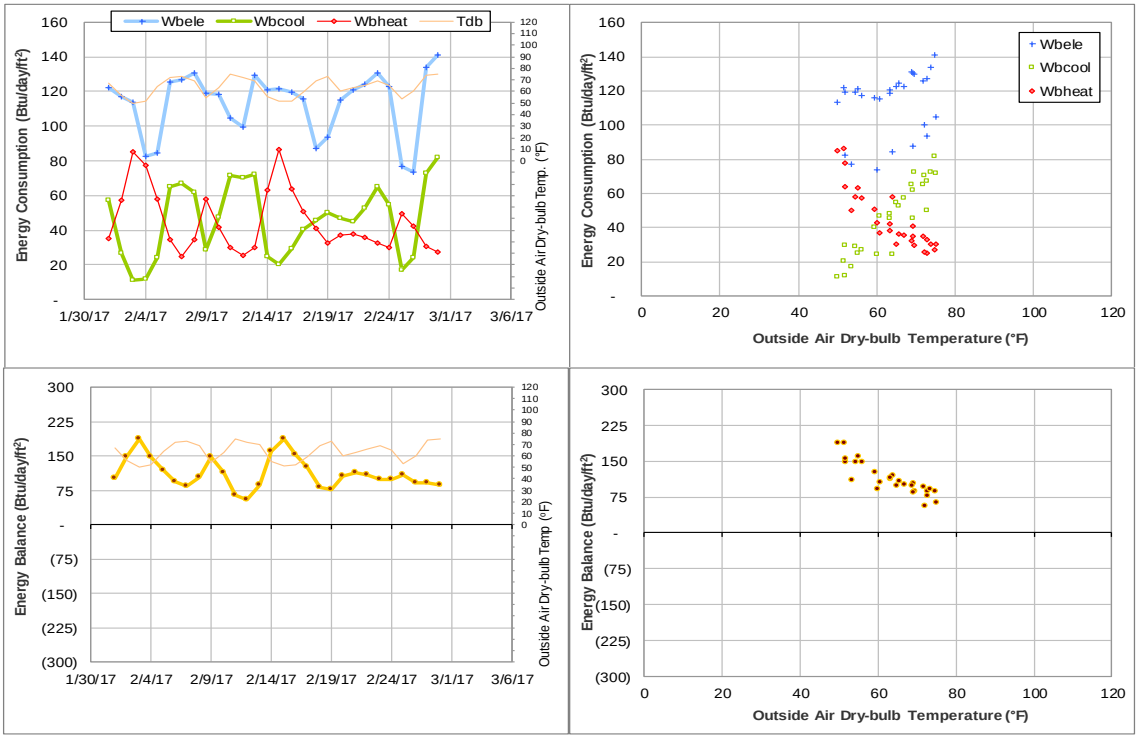



Figure IV-132 Physical Plant Administration & Shops TAMU BLDG # 1156 Energy Balance Plot during February 2017

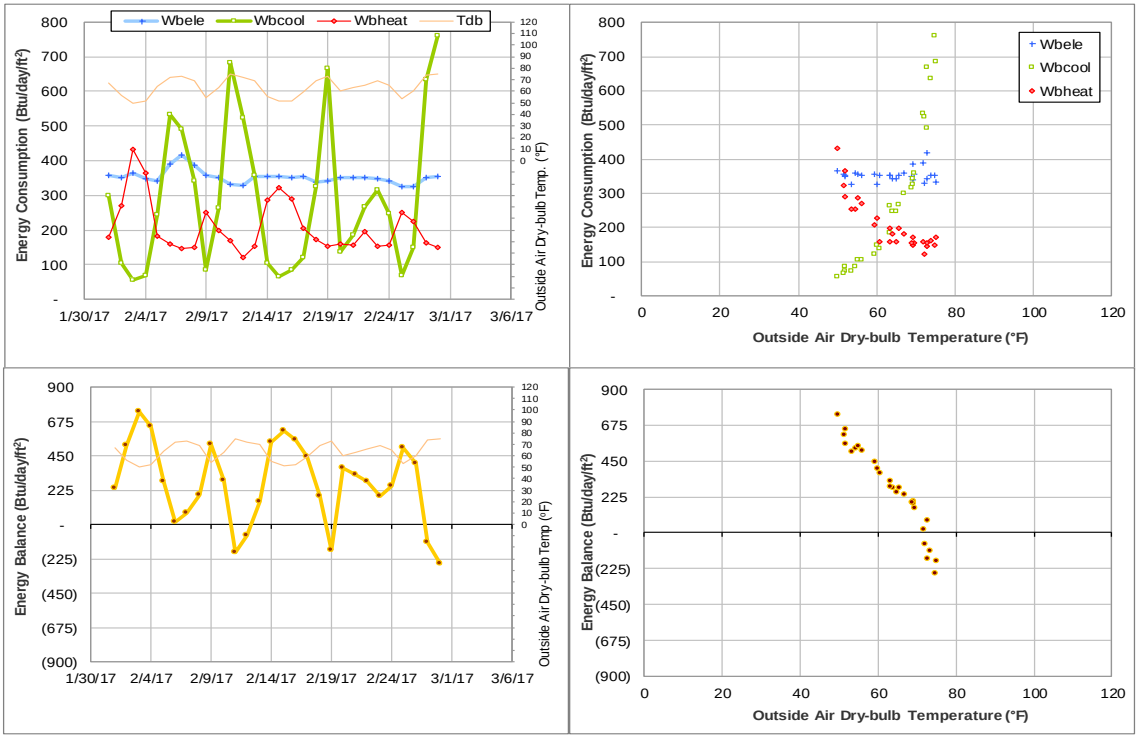



Figure IV-133 Veterinary Anatomic Pathology TAMU BLDG # 1184 Energy Balance Plot during February 2017

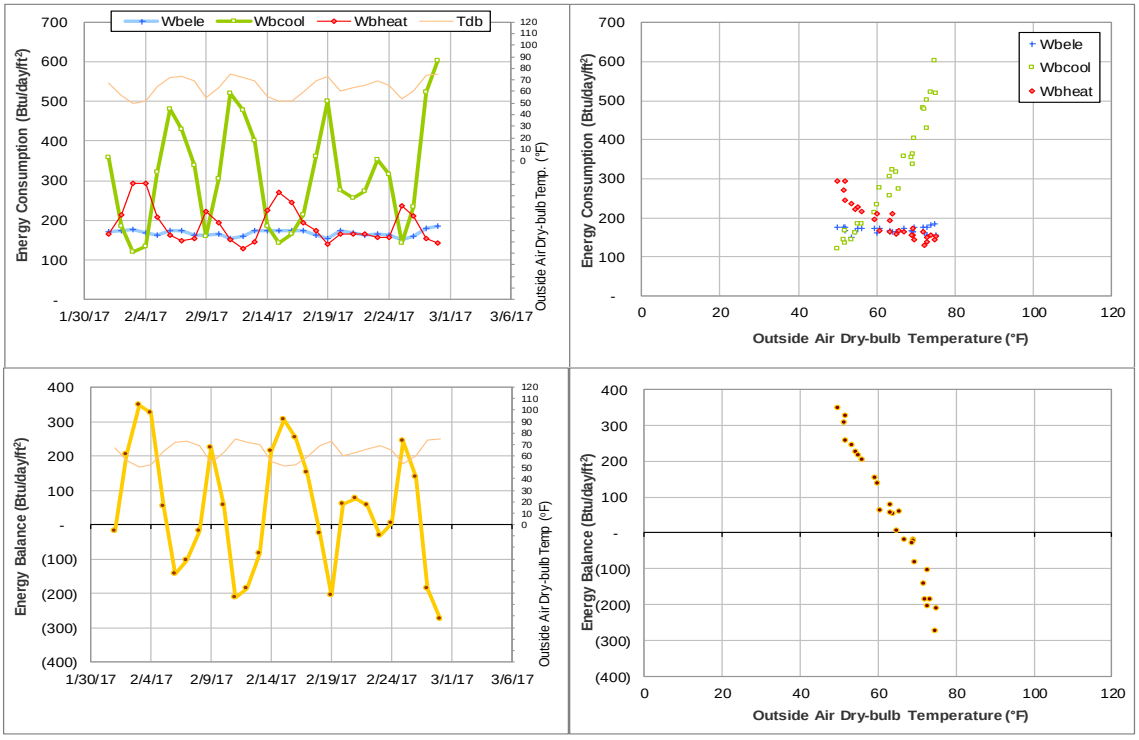



Figure IV-134 Veterinary Large Animal Hospital TAMU BLDG # 1194 Energy Balance Plot during February 2017

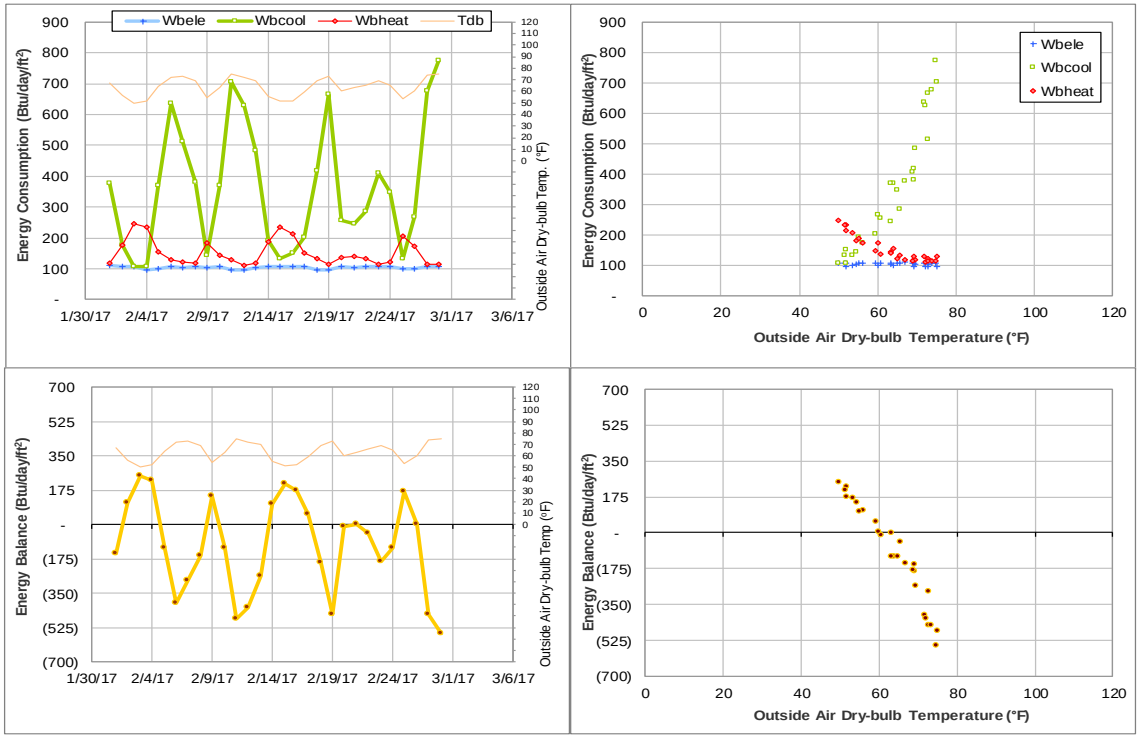



Figure IV-135 Veterinary Research Building TAMU BLDG # 1197 Energy Balance Plot during February 2017

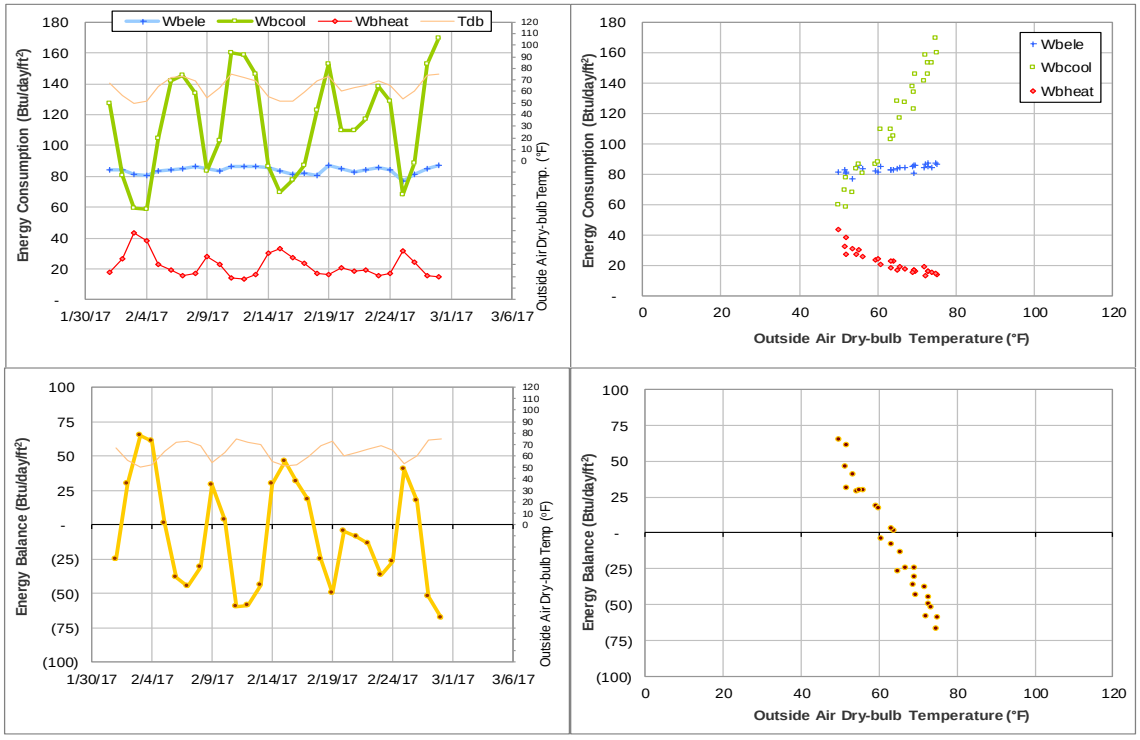



Figure IV-136 Hullabaloo Residence Hall TAMU BLDG # 1416 Energy Balance Plot during February 2017

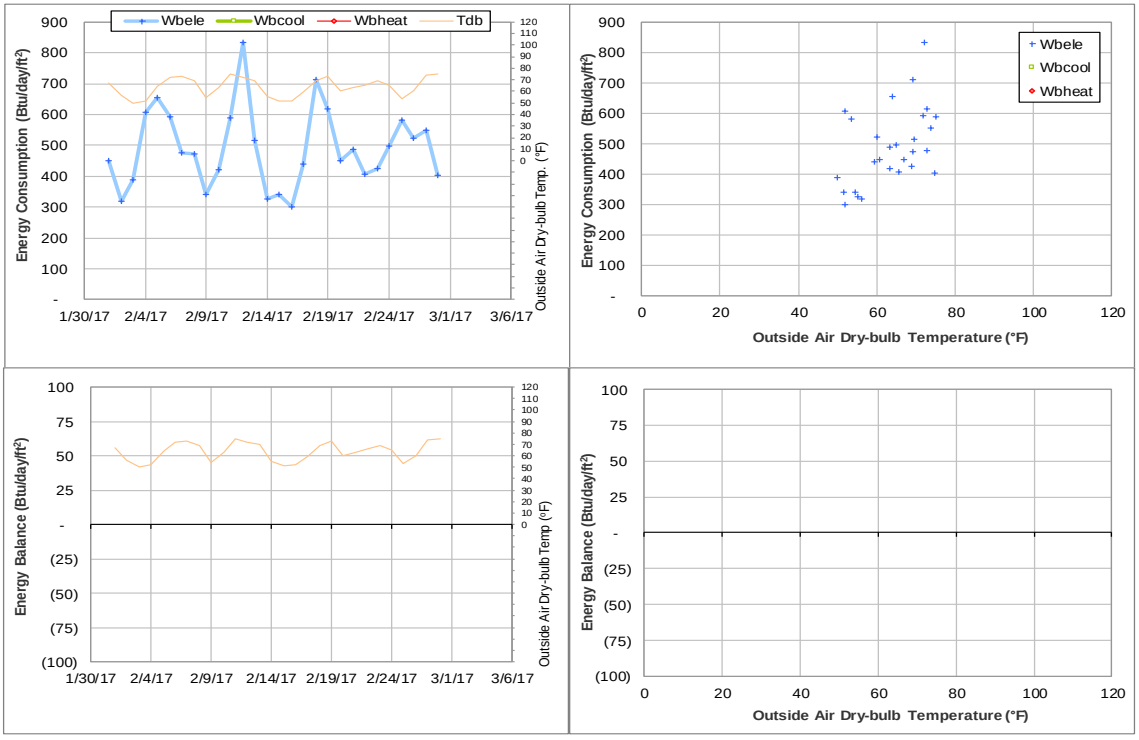



Figure IV-137 University Apartments - Laundry at the Gardens TAMU BLDG # 1450 Energy Balance Plot during February 2017

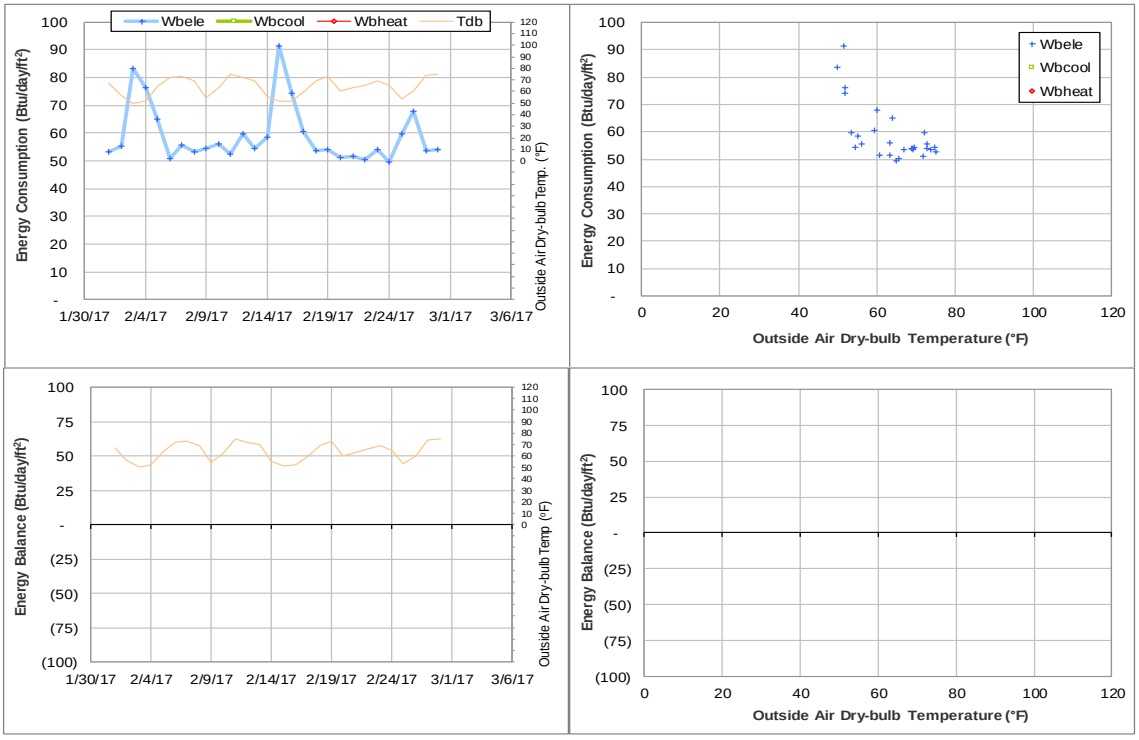



Figure IV-138 University Apartments - The Gardens J TAMU BLDG # 1451 Energy Balance Plot during February 2017

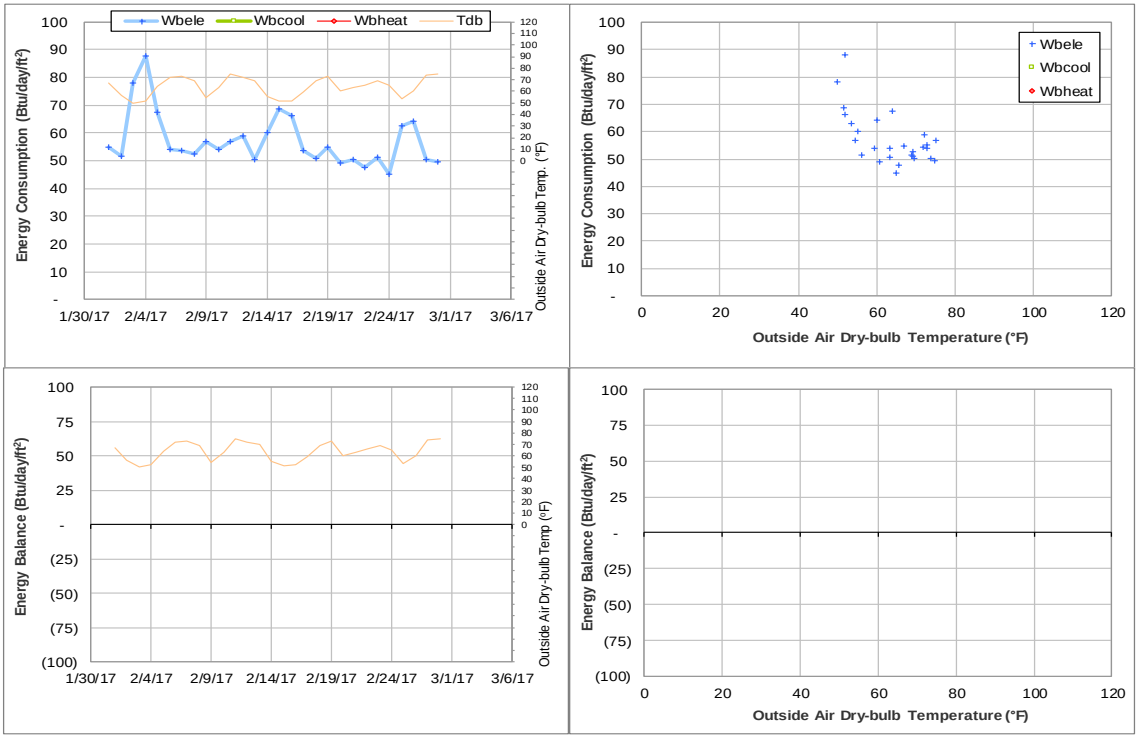



Figure IV-139 University Apartments - The Gardens K TAMU BLDG # 1452 Energy Balance Plot during February 2017

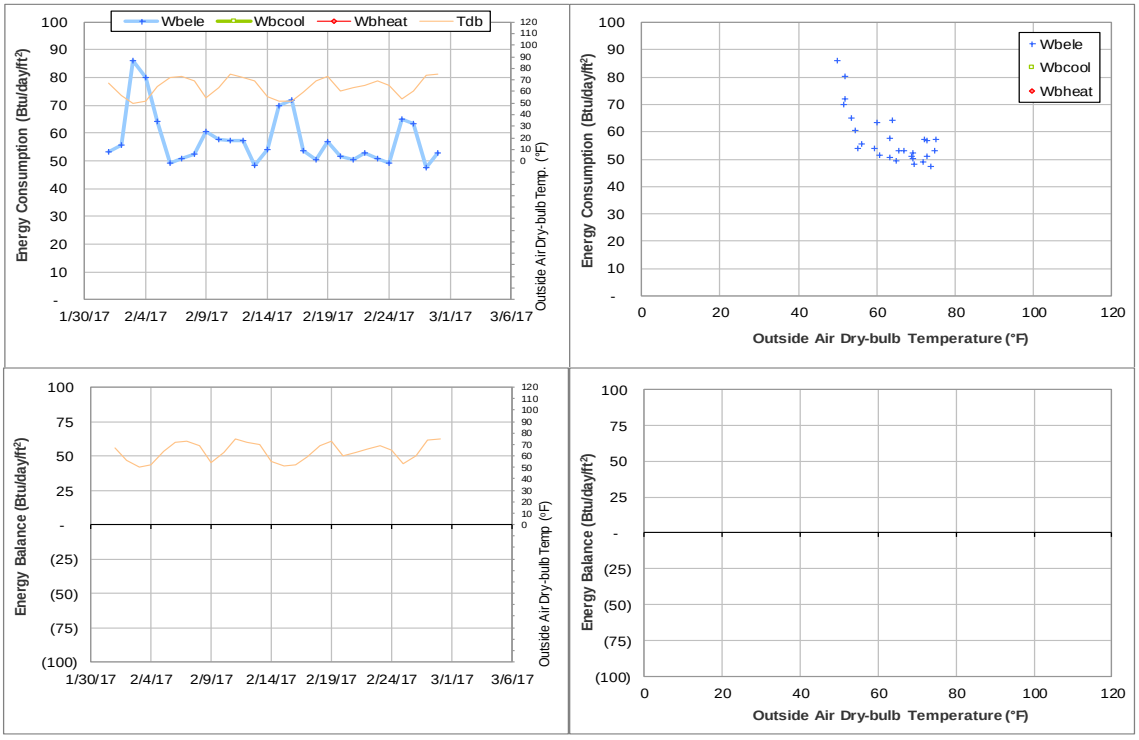



Figure IV-140 University Apartments - The Gardens L TAMU BLDG # 1453 Energy Balance Plot during February 2017

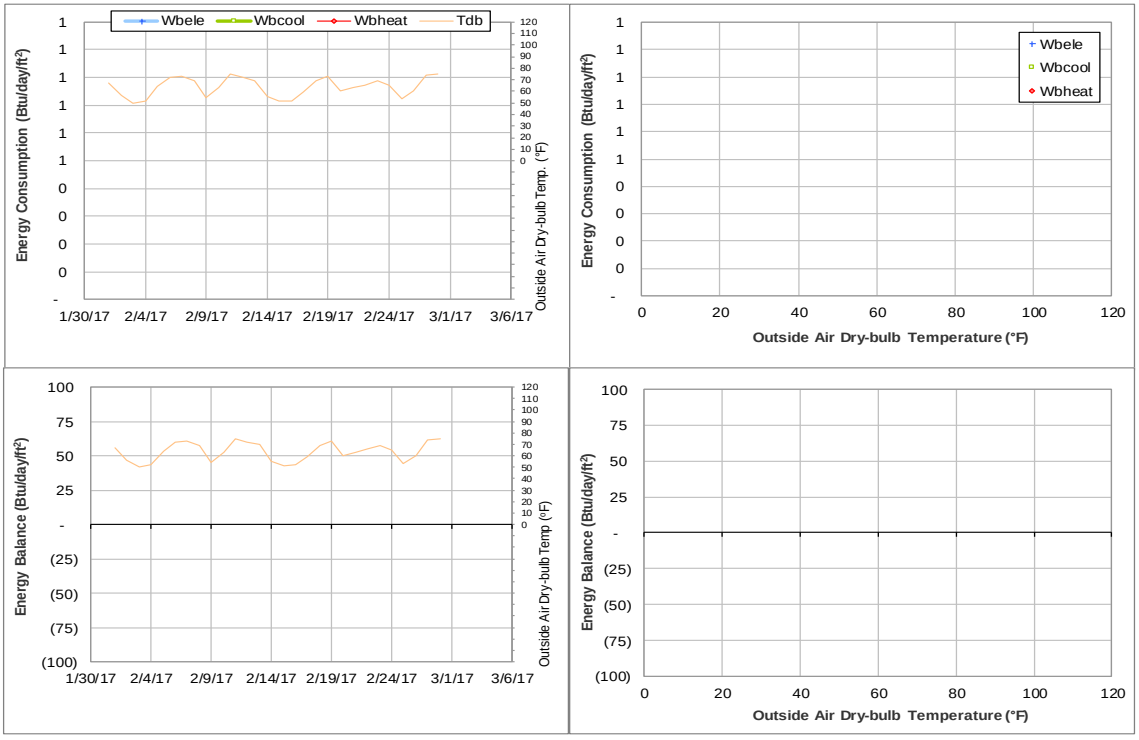



Figure IV-141 University Apartments - The Gardens F TAMU BLDG # 1454 Energy Balance Plot during February 2017

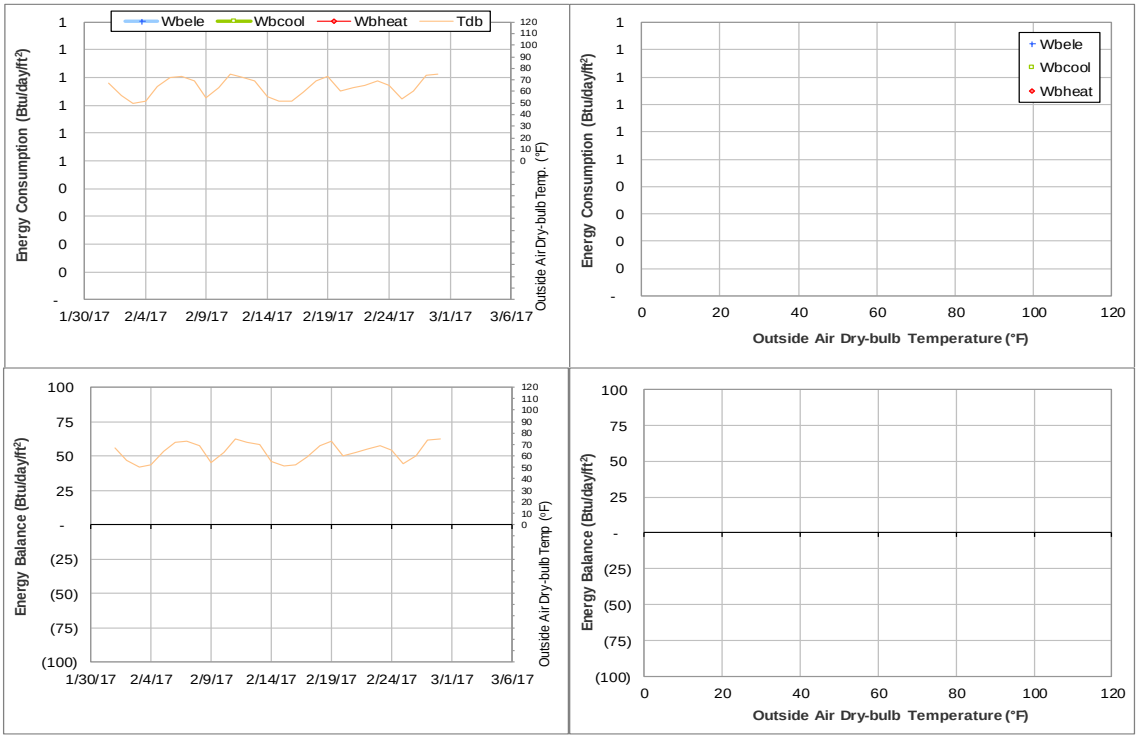



Figure IV-142 University Apartments - The Gardens G TAMU BLDG # 1455 Energy Balance Plot during February 2017

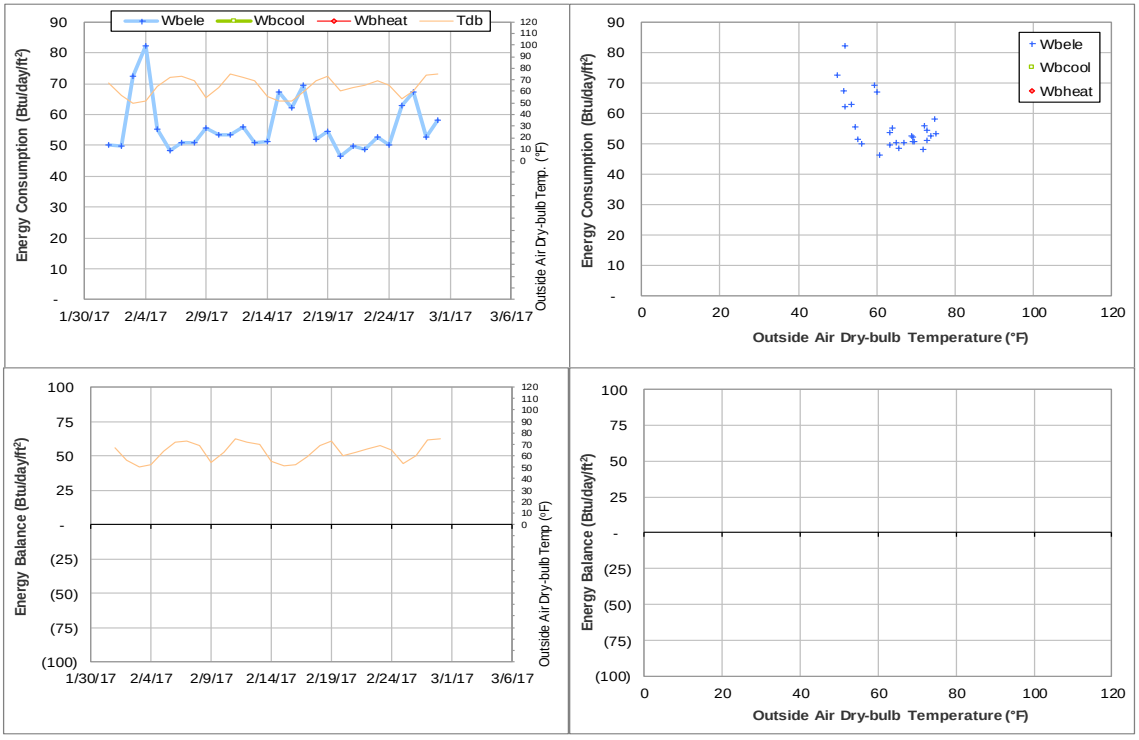



Figure IV-143 University Apartments - The Gardens H TAMU BLDG # 1456 Energy Balance Plot during February 2017

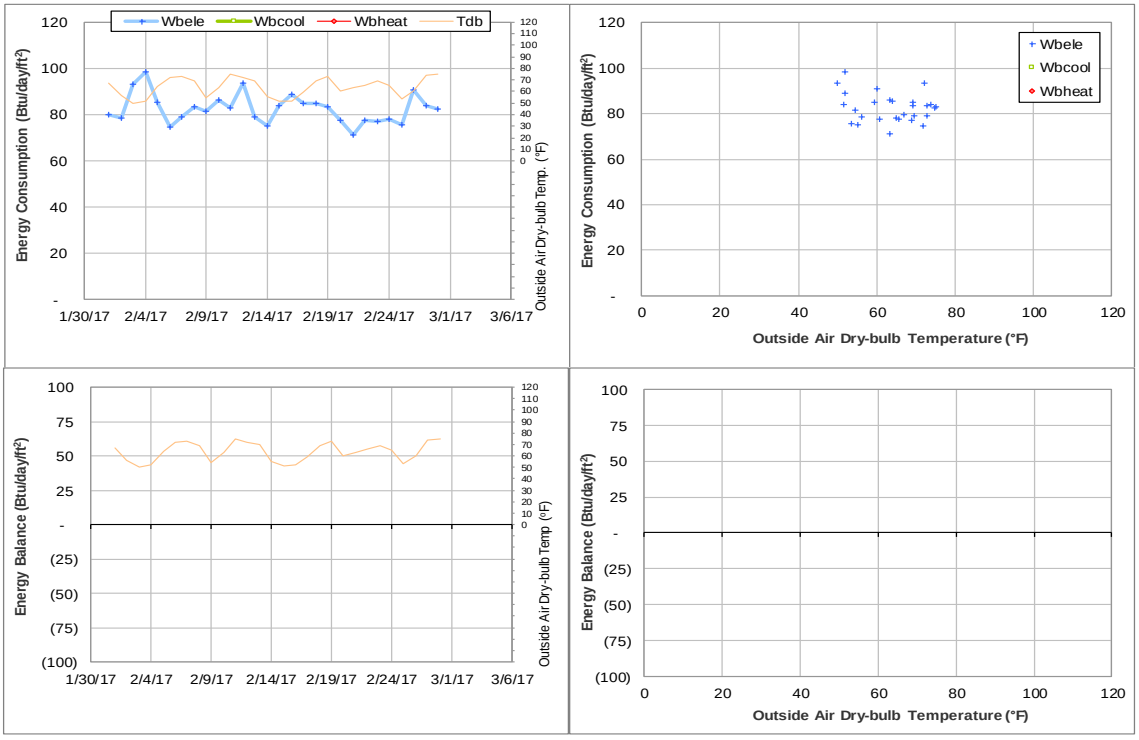



Figure IV-144 University Apartments - The Gardens M TAMU BLDG # 1457 Energy Balance Plot during February 2017

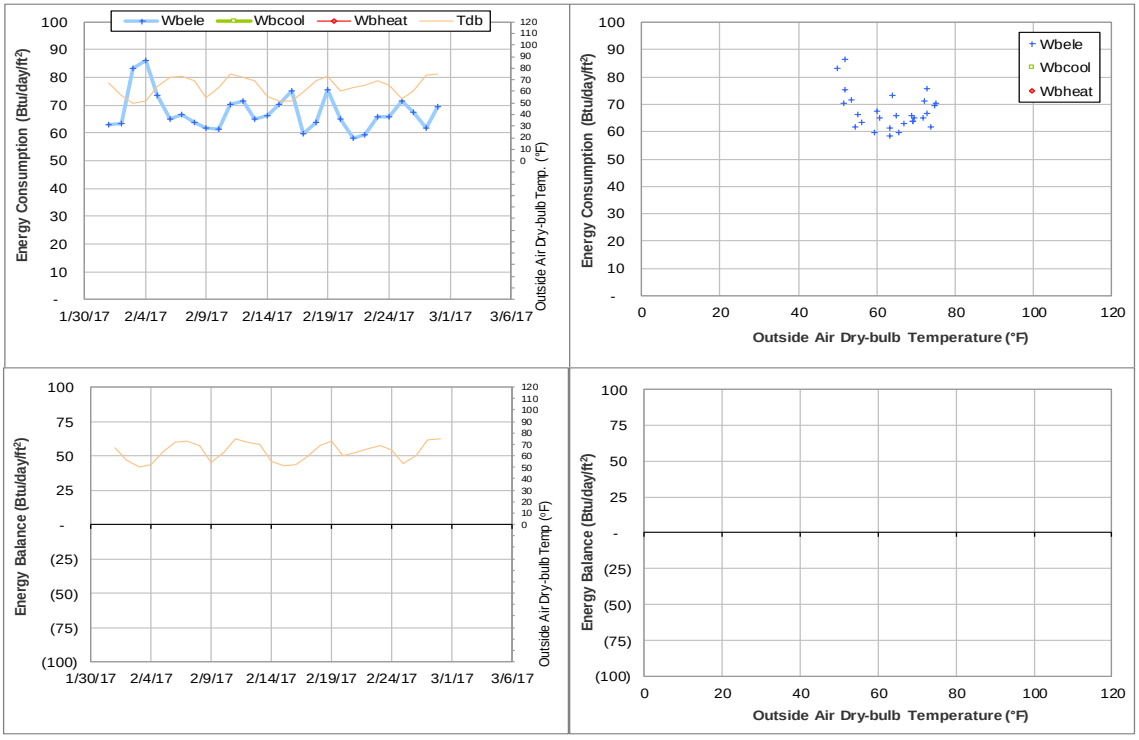



Figure IV-145 University Apartments - The Gardens N TAMU BLDG # 1458 Energy Balance Plot during February 2017

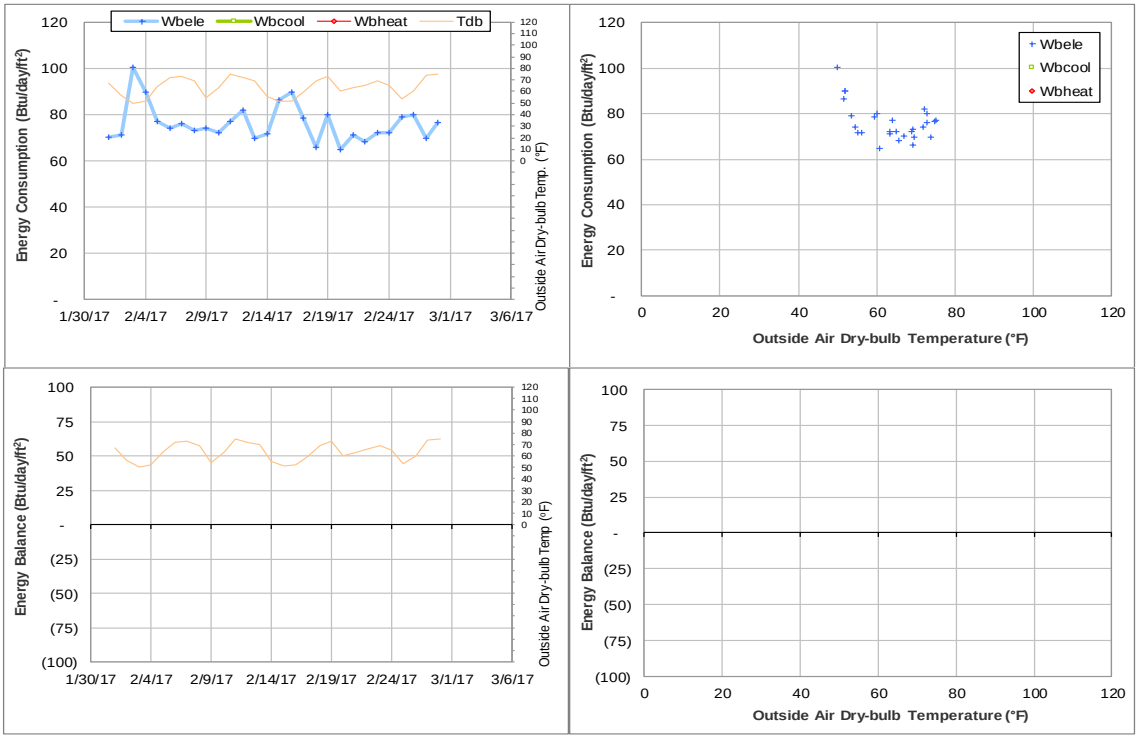



Figure IV-146 University Apartments - The Gardens P TAMU BLDG # 1459 Energy Balance Plot during February 2017

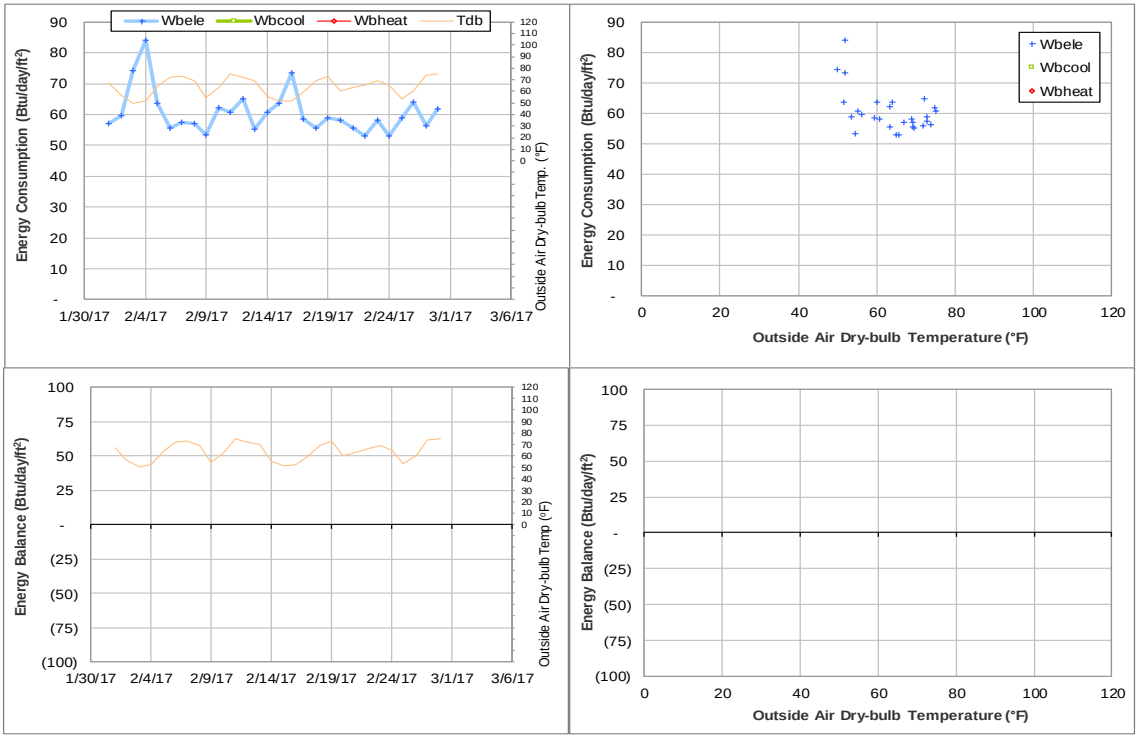



Figure IV-147 University Apartments - The Gardens Q TAMU BLDG # 1460 Energy Balance Plot during February 2017

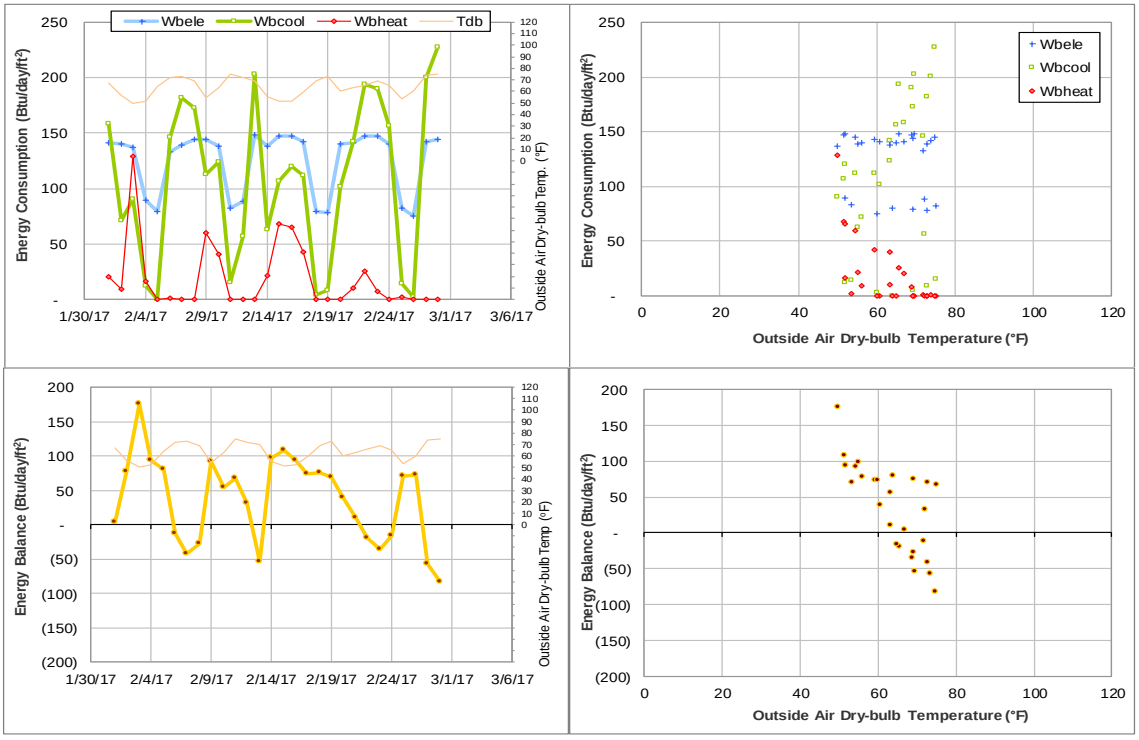



Figure IV-148 Utilities & Energy Services Business Office TAMU BLDG # 1497 Energy Balance Plot during February 2017

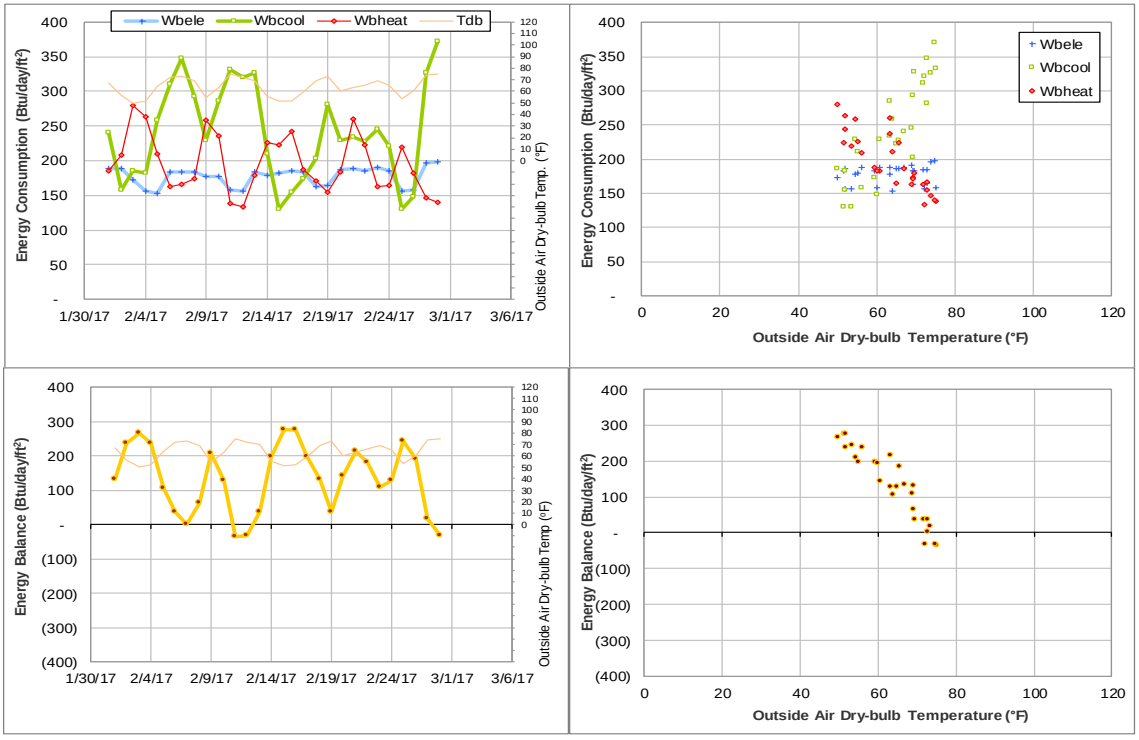



Figure IV-149 Kleberg Center TAMU BLDG # 1501 Energy Balance Plot during February 2017

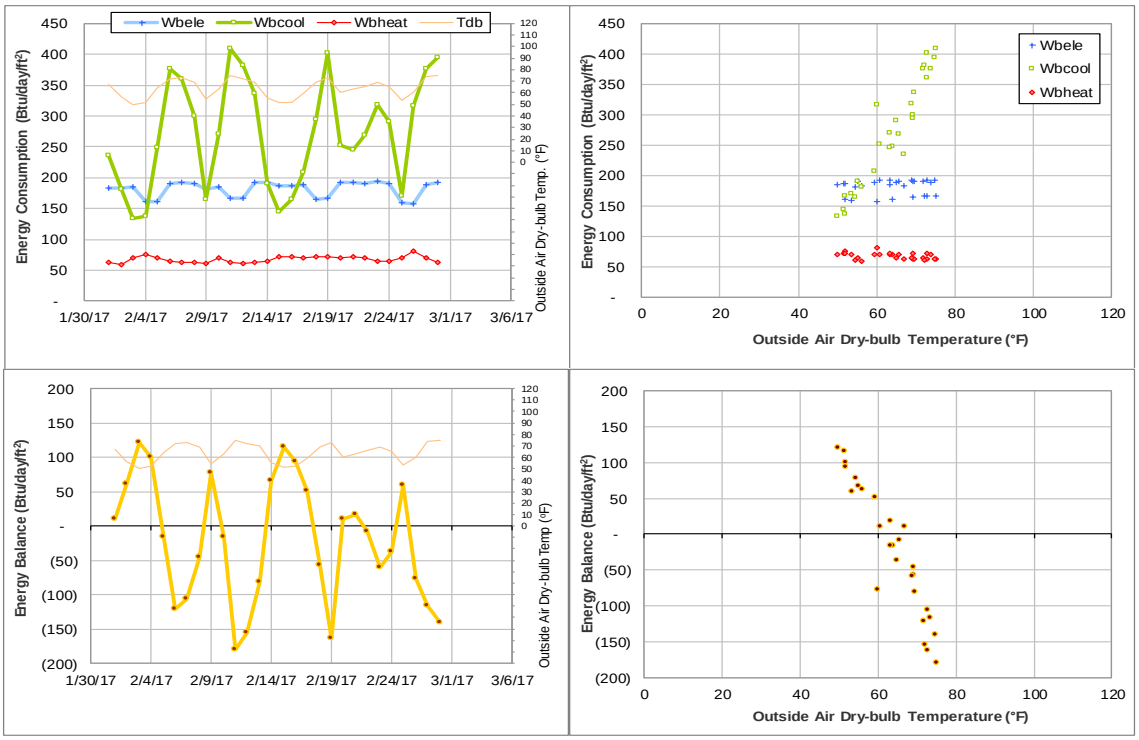



Figure IV-150 Heep Center TAMU BLDG # 1502 Energy Balance Plot during February 2017

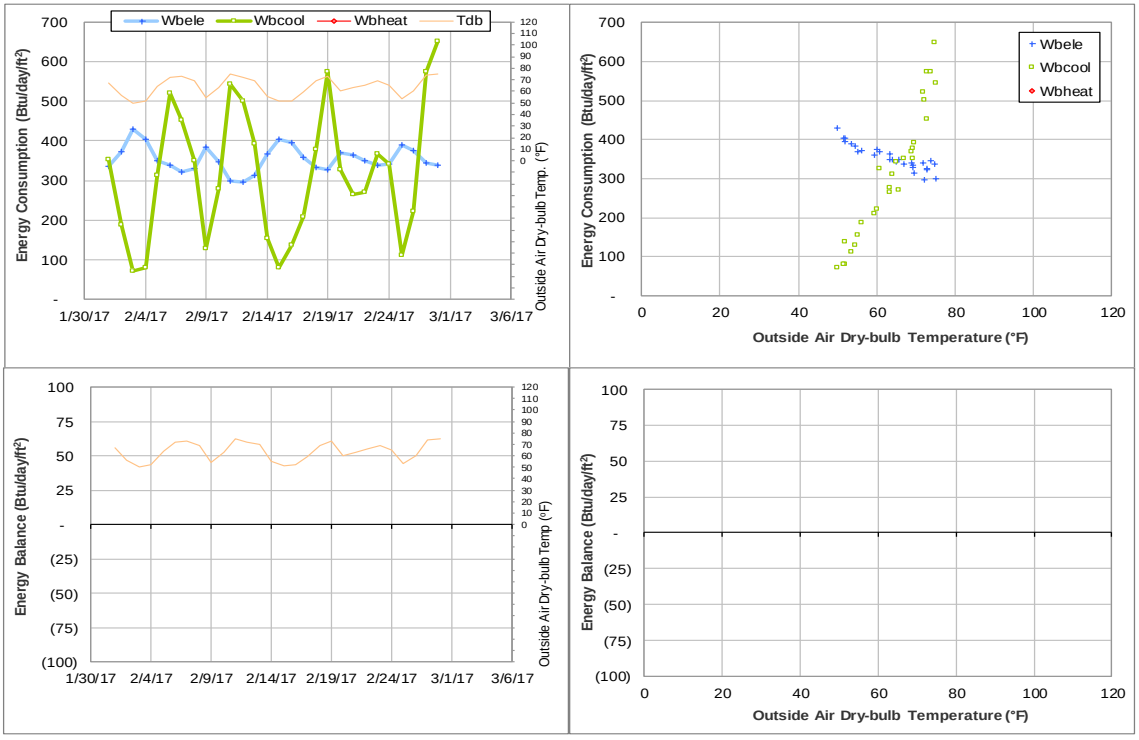



Figure IV-151 Cater-Mattil Hall TAMU BLDG # 1503 Energy Balance Plot during February 2017

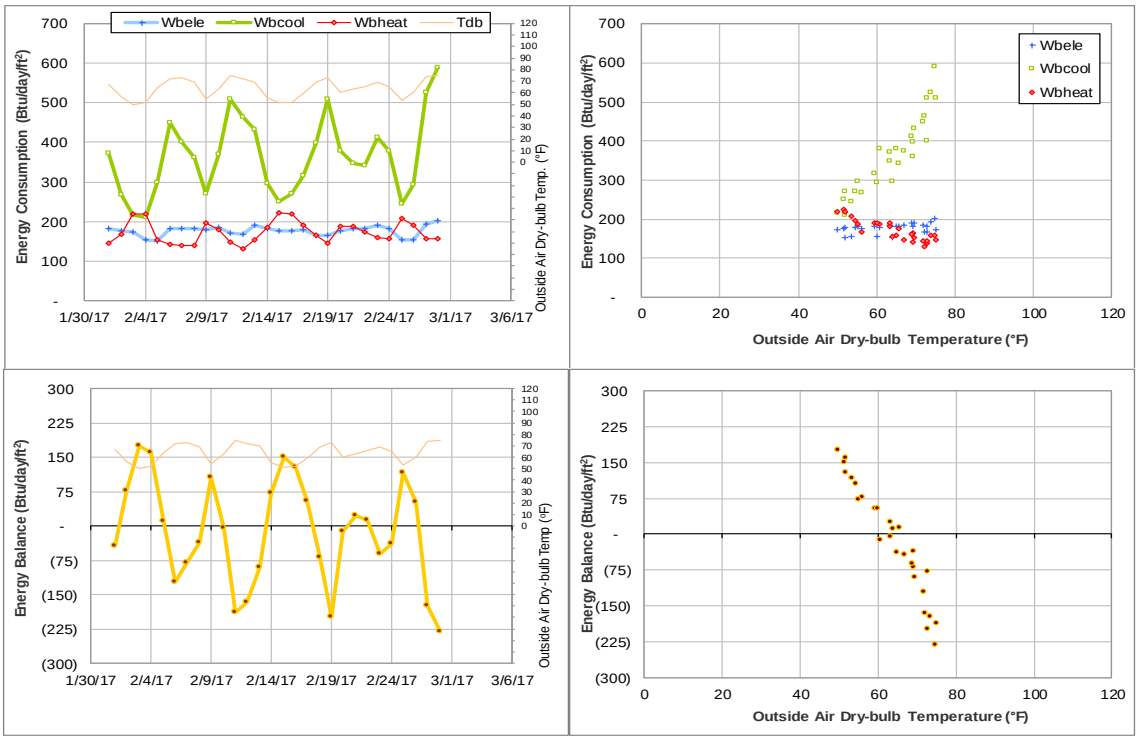



Figure IV-152 Reynolds Medical Sciences Building TAMU BLDG # 1504 Energy Balance Plot during February 2017

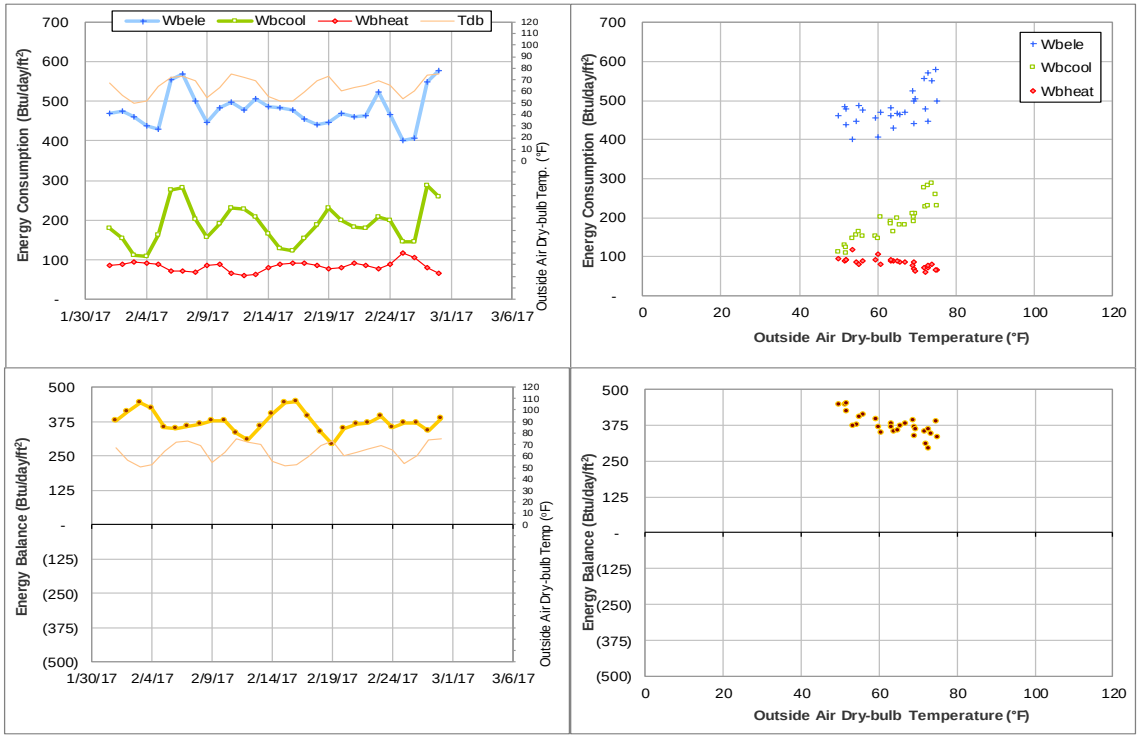



Figure IV-153 Rosenthal Meat Science & Technology Center TAMU BLDG # 1505 Energy Balance Plot during February 2017

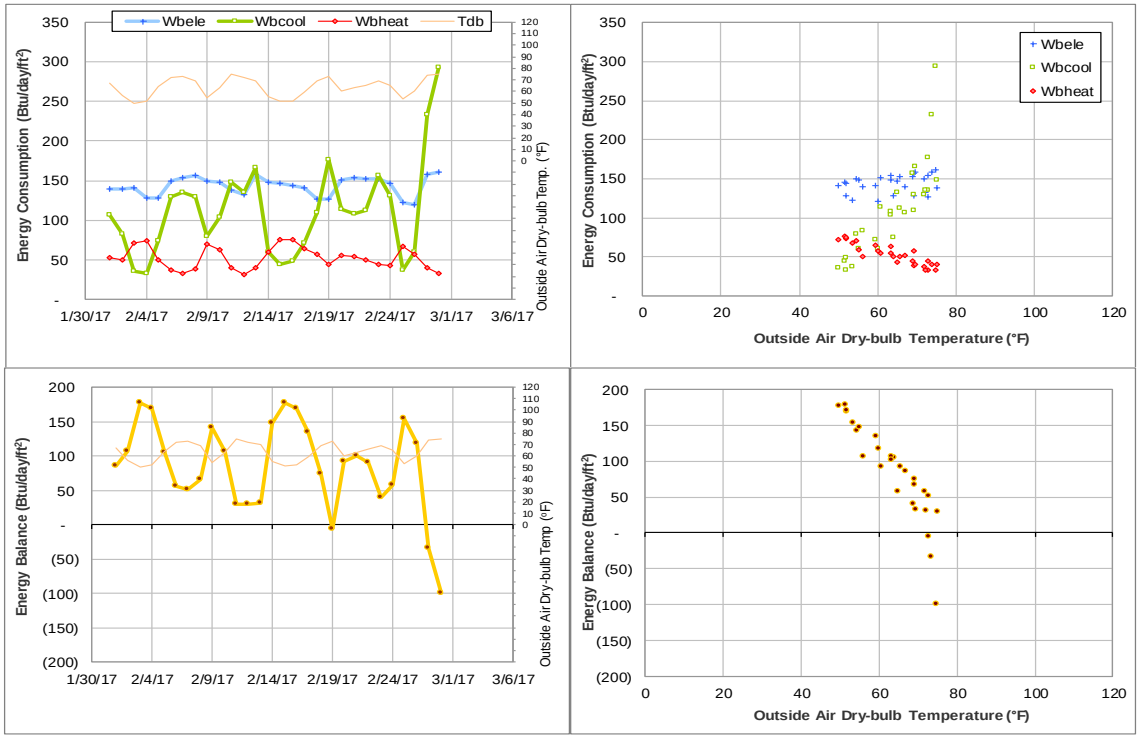



Figure IV-154 Horticulture-Forest Science Building TAMU BLDG # 1506 Energy Balance Plot during February 2017

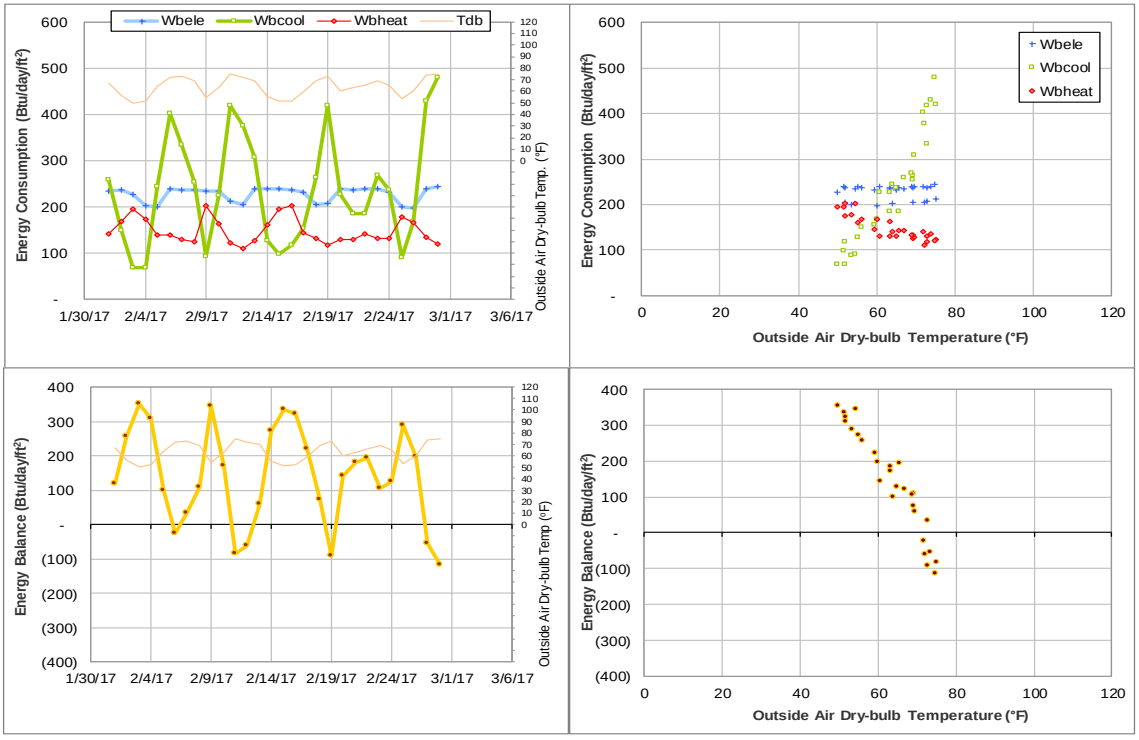



Figure IV-155 Biochemistry-Biophysics Building TAMU BLDG # 1507 Energy Balance Plot during February 2017

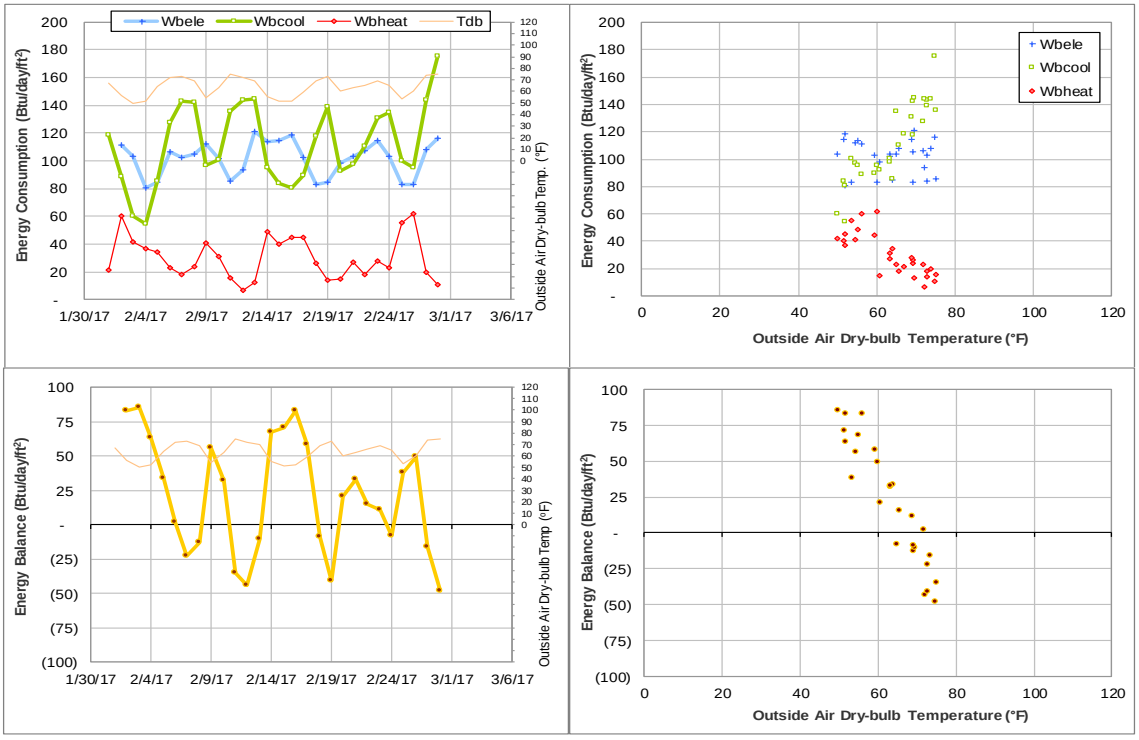



Figure IV-156 Price Hobgood Ag. Engineering Research Lab TAMU BLDG # 1508 Energy Balance Plot during February 2017

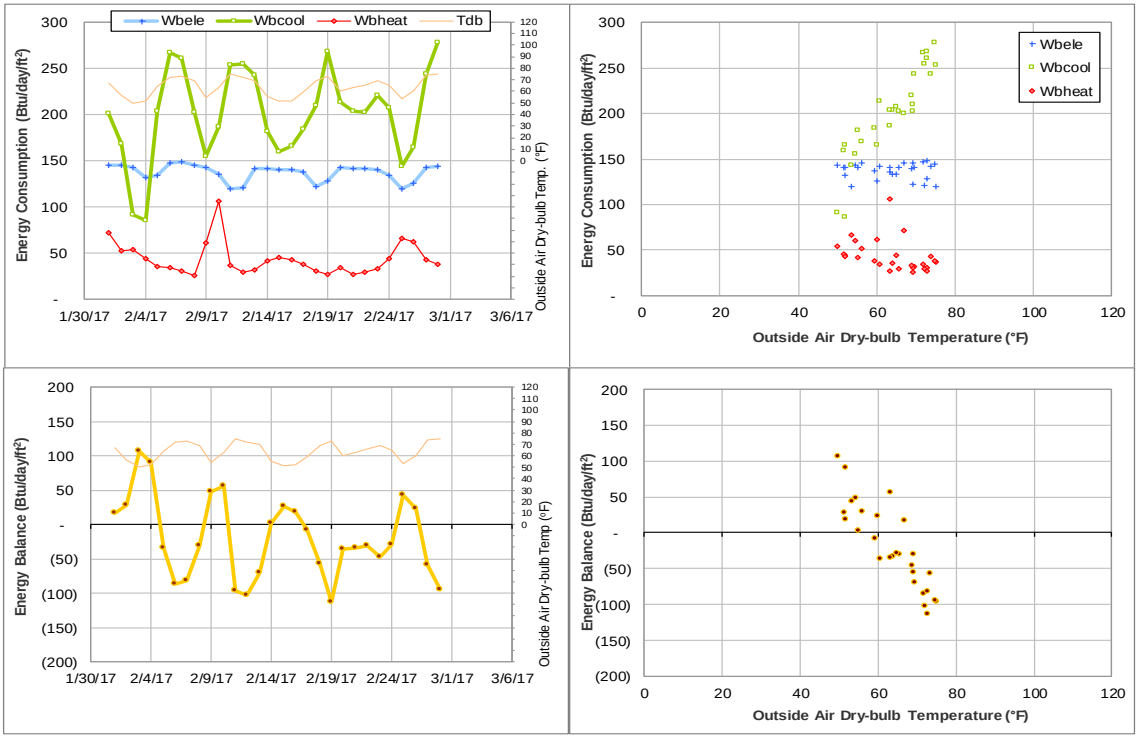



Figure IV-157 Medical Sciences Library TAMU BLDG # 1509 Energy Balance Plot during February 2017

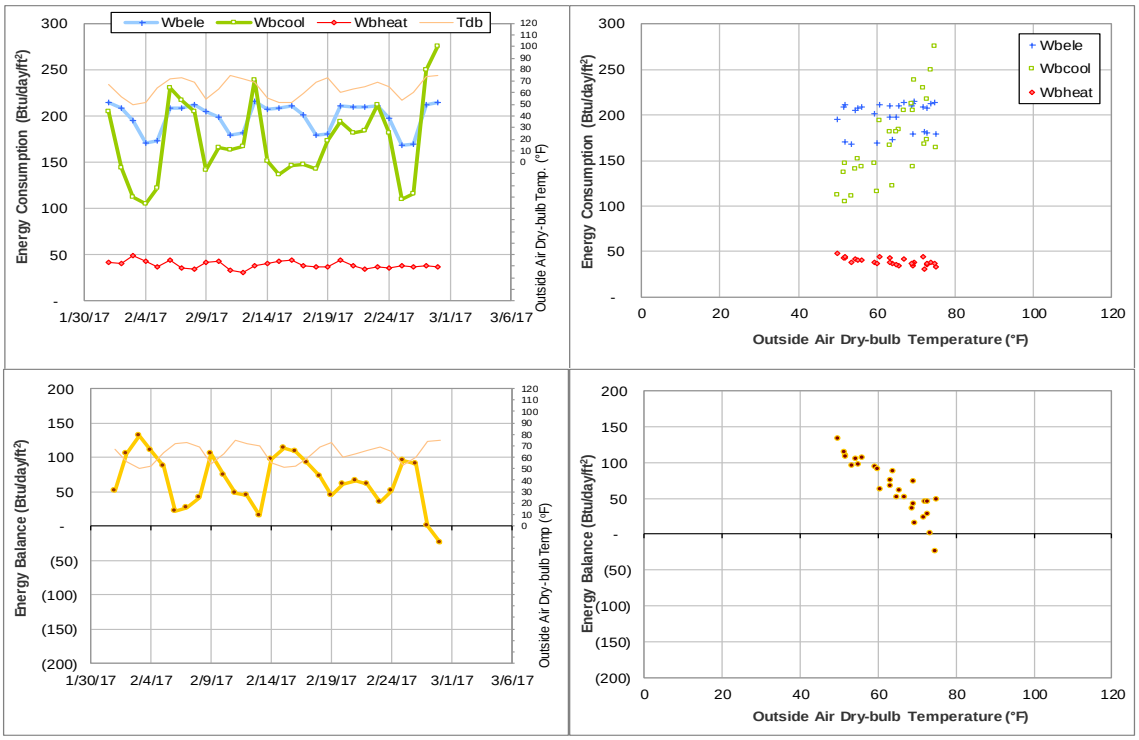



Figure IV-158 Wehner Building TAMU BLDG # 1510 Energy Balance Plot during February 2017

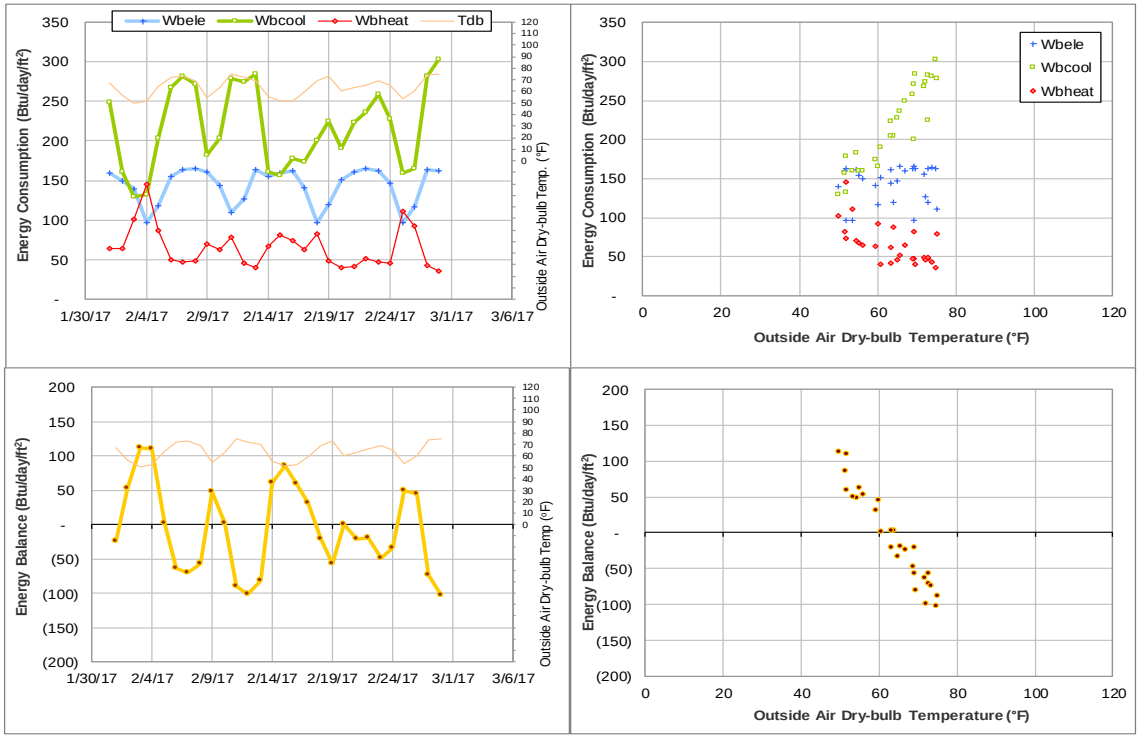



Figure IV-159 West Campus Library Facility TAMU BLDG # 1511 Energy Balance Plot during February 2017

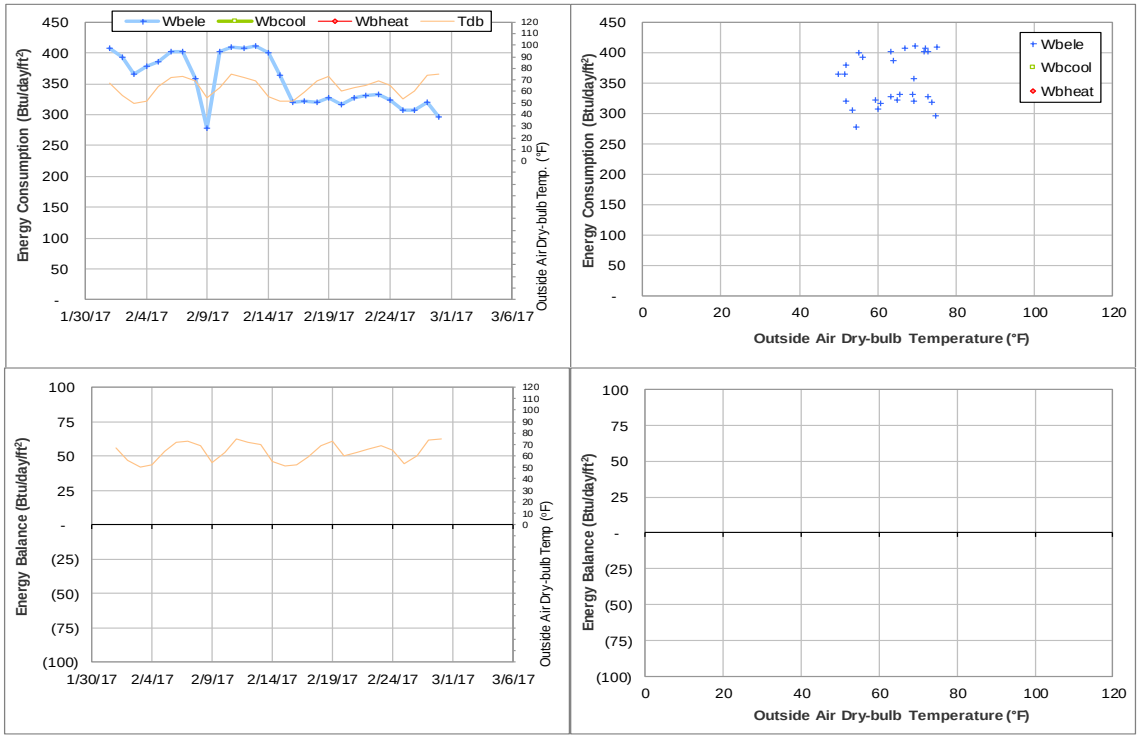



Figure IV-160 Southern Crop Improvement Greenhouse TAMU BLDG # 1512 Energy Balance Plot during February 2017

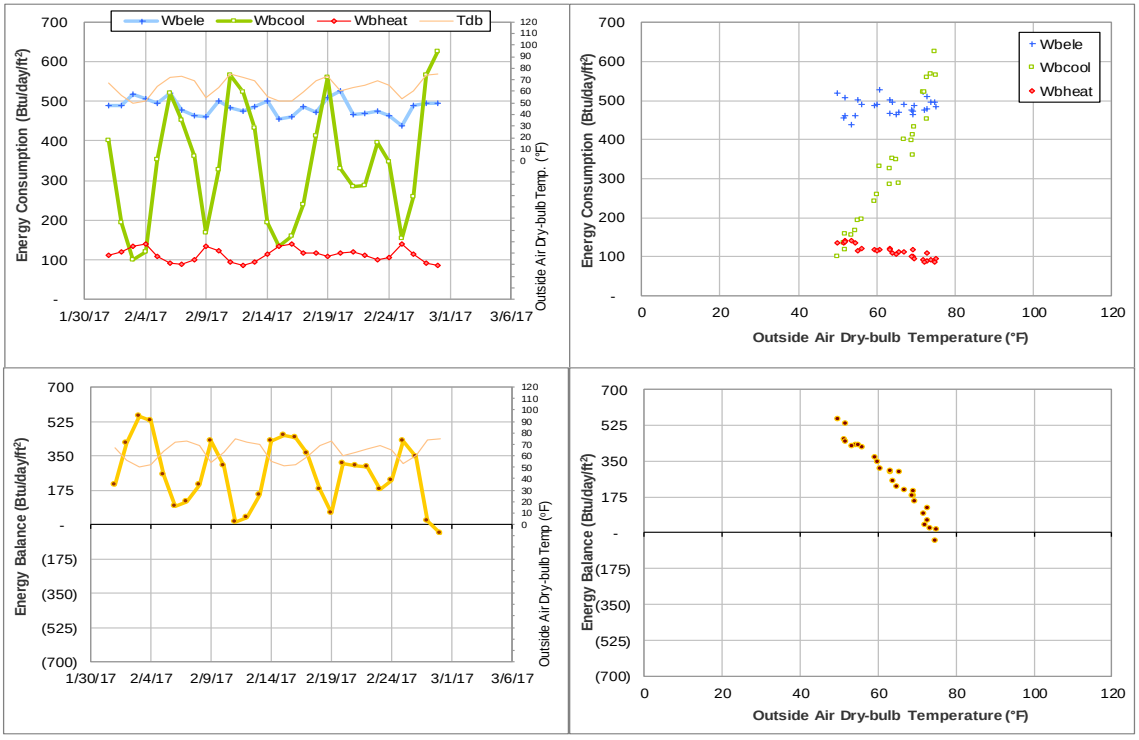



Figure IV-161 Borlaug Center for Southern Crop Improvement TAMU BLDG # 1513 Energy Balance Plot during February 2017

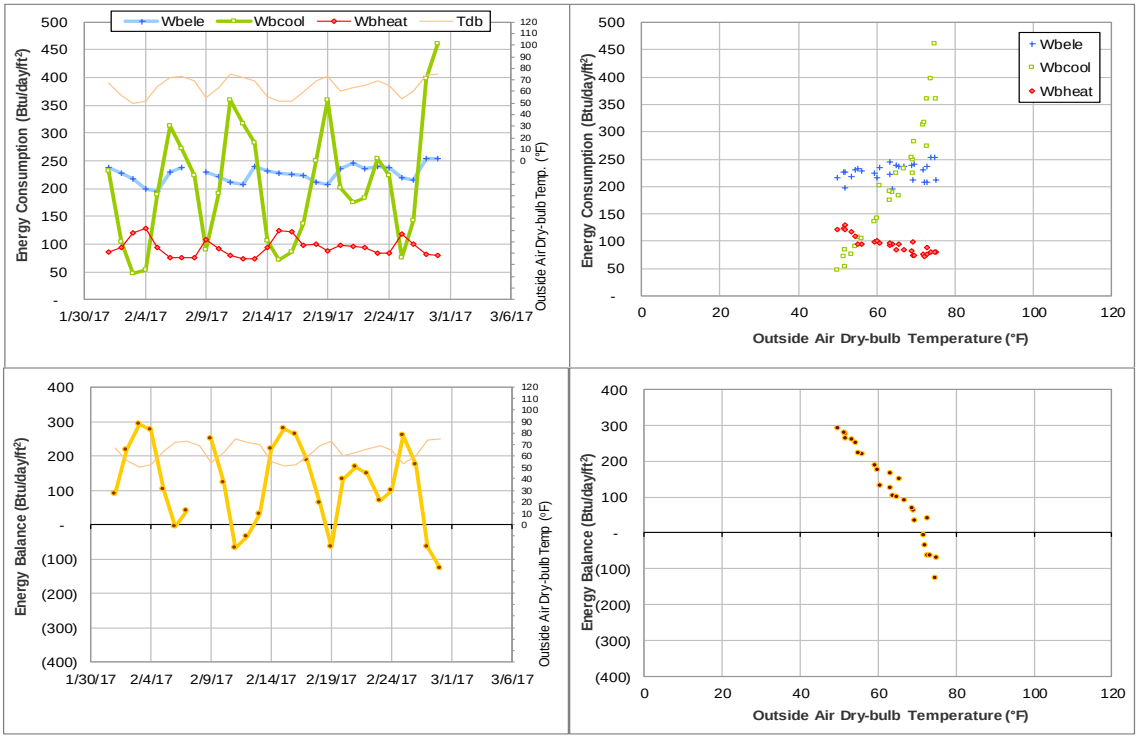



Figure IV-162 TX School of Rural Public Health TAMU BLDG # 1518 Energy Balance Plot during February 2017

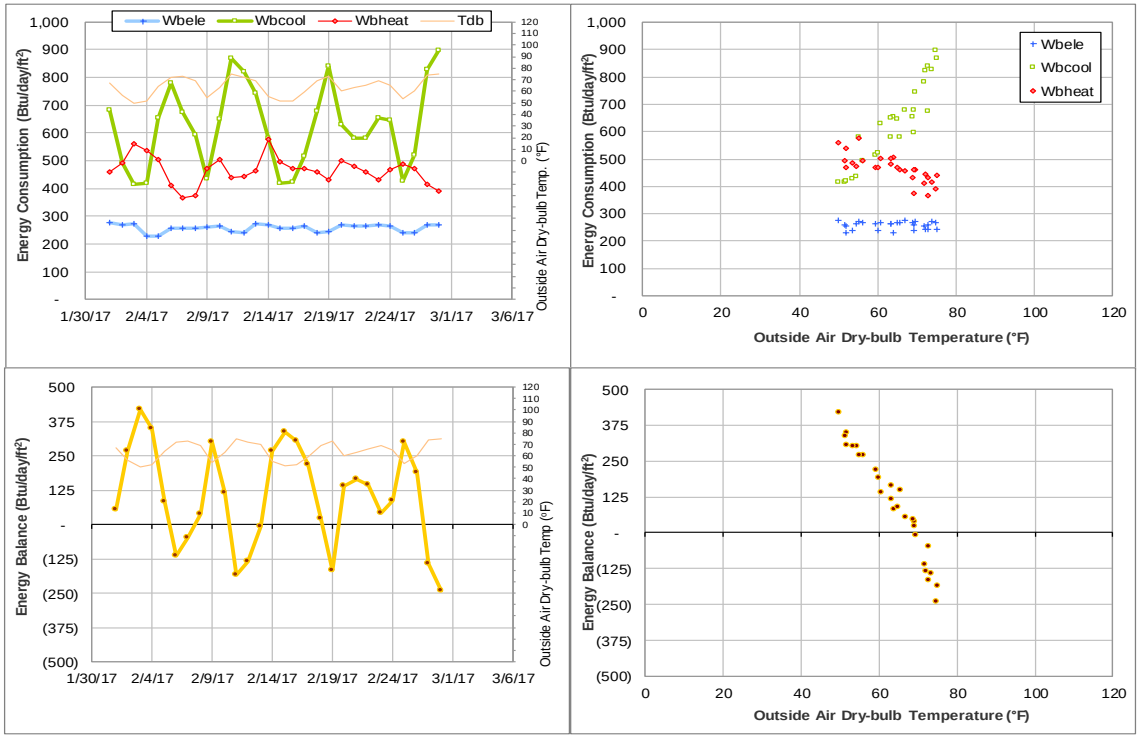



Figure IV-163 Nuclear Magnetic Resonance Facility TAMU BLDG # 1525 Energy Balance Plot during February 2017

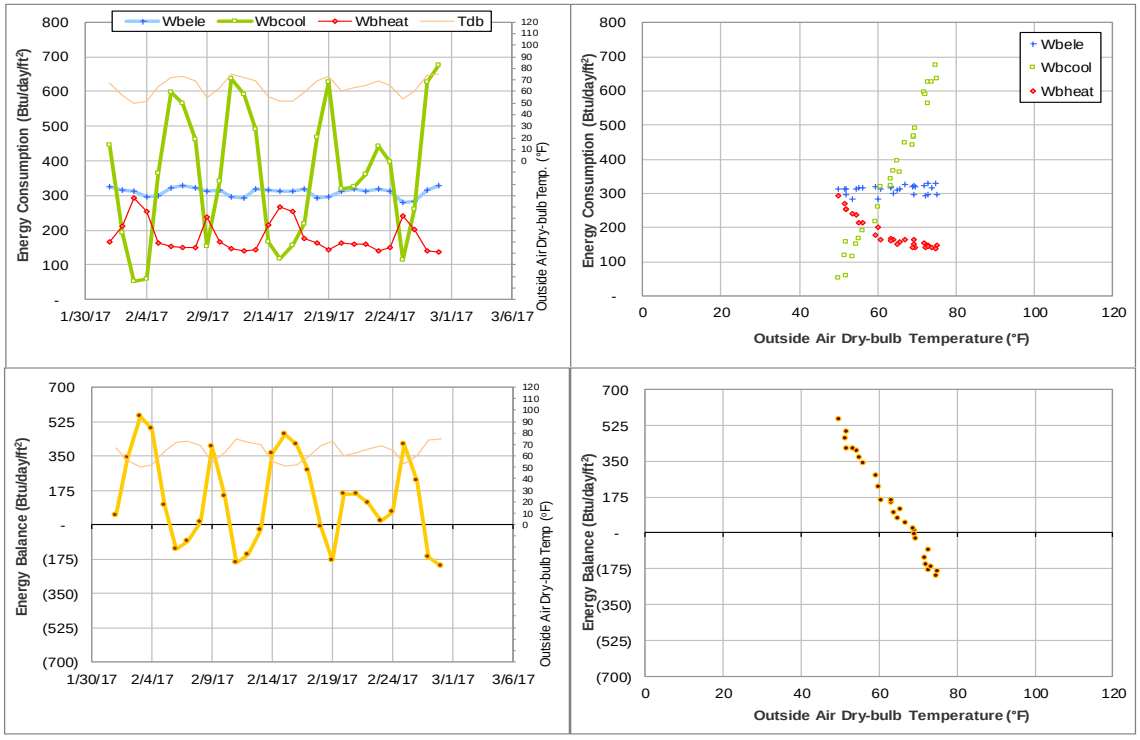



Figure IV-164 Interdisciplinary Life Sciences Building TAMU BLDG # 1530 Energy Balance Plot during February 2017

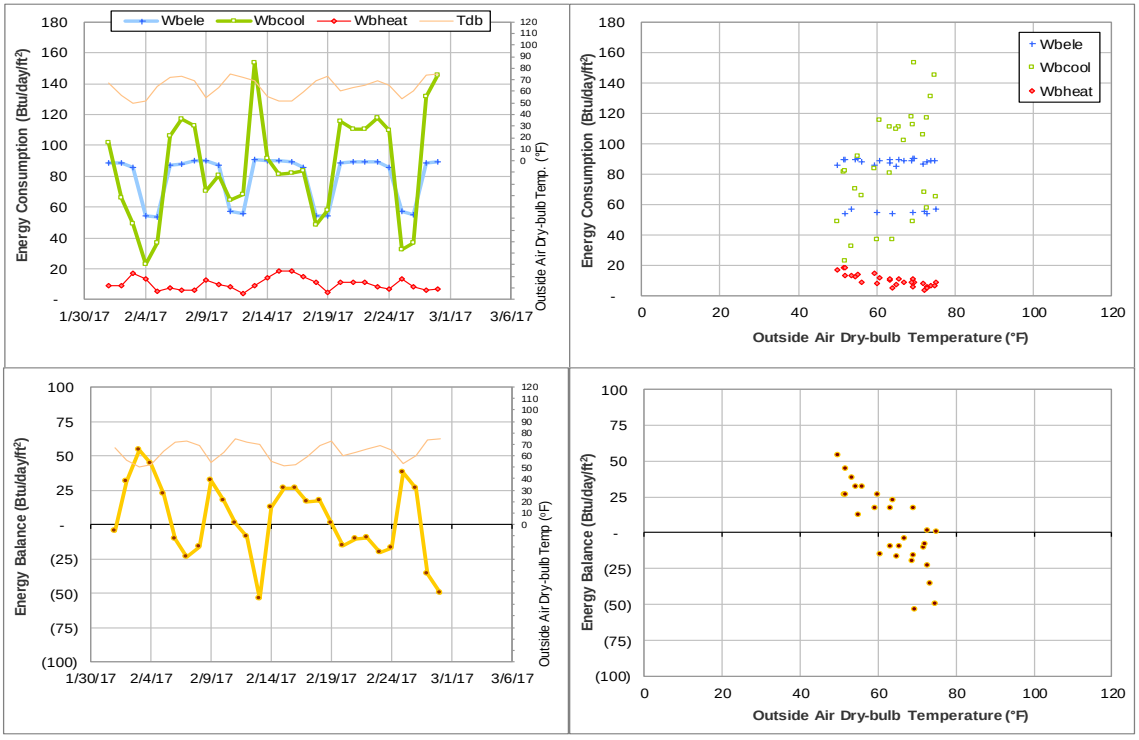



Figure IV-165 Agriculture and Life Sciences Building TAMU BLDG # 1535 Energy Balance Plot during February 2017

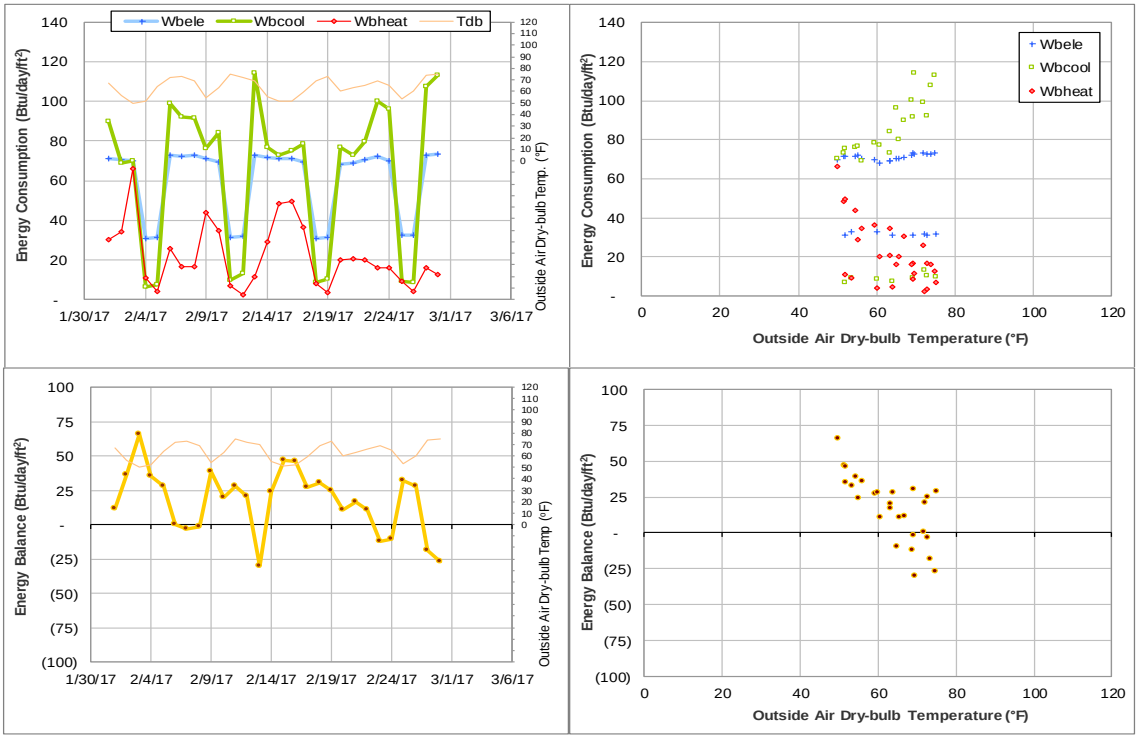



Figure IV-166 AgriLife Services Building TAMU BLDG # 1536 Energy Balance Plot during February 2017

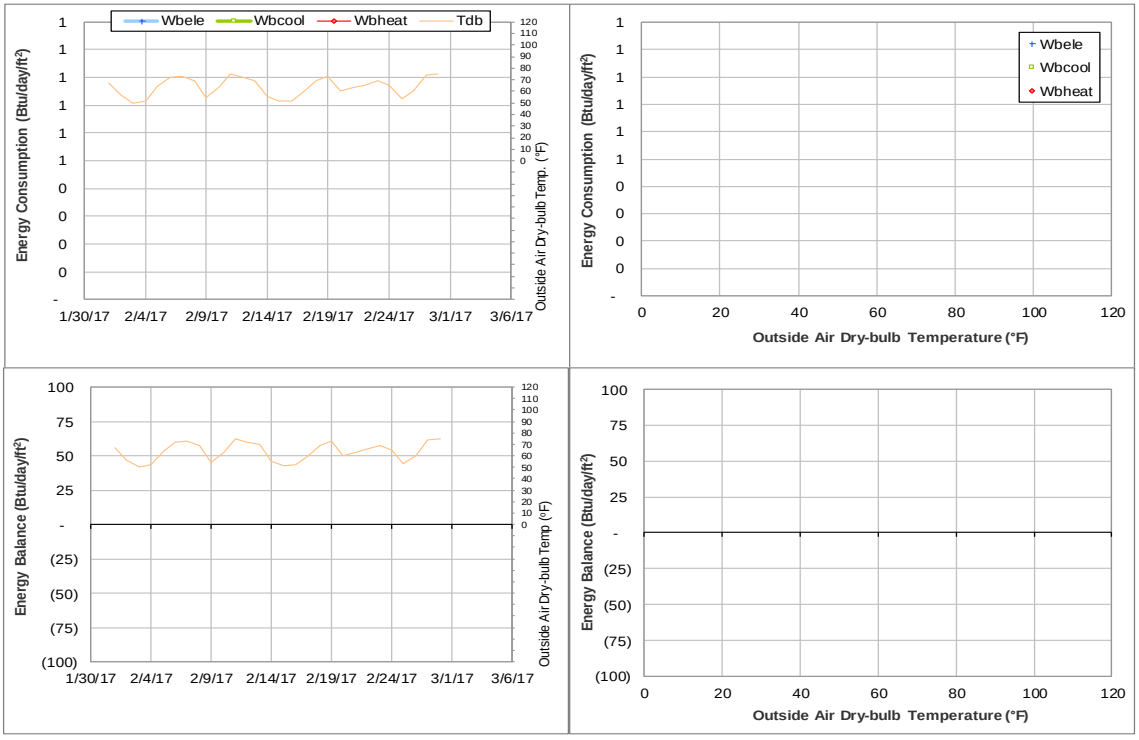



Figure IV-167 Agriculture Public Building TAMU BLDG # 1537 Energy Balance Plot during February 2017

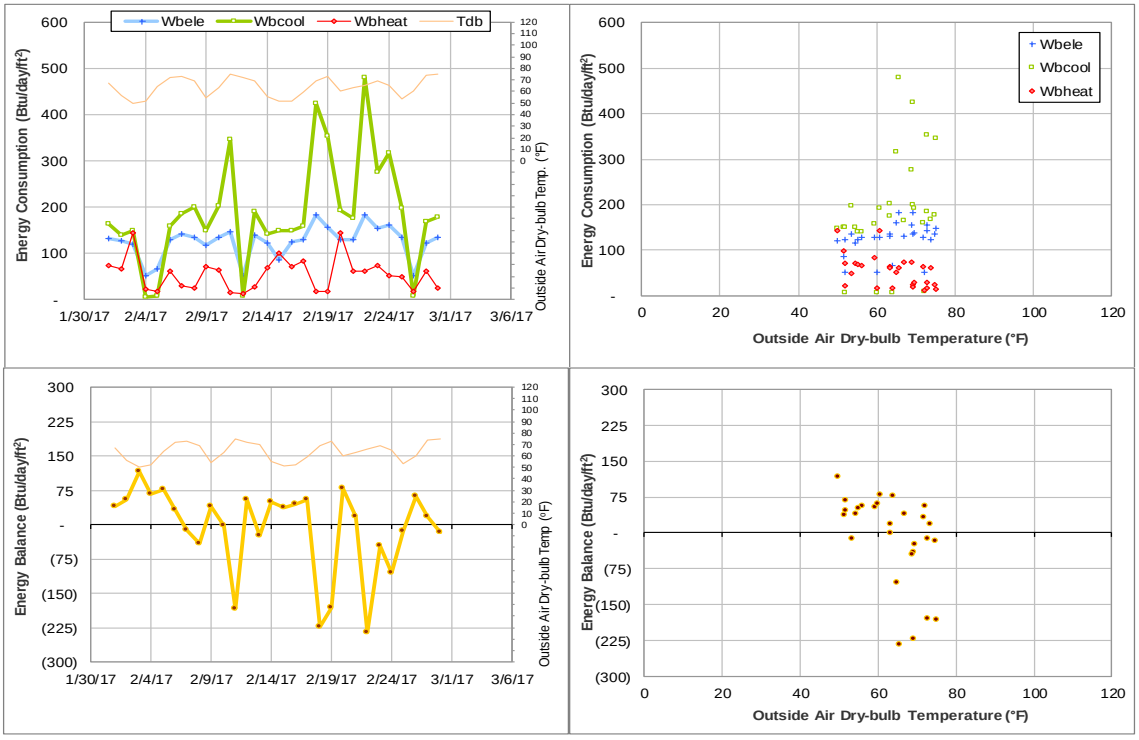



Figure IV-168 Agriculture Program Visitors Center TAMU BLDG # 1538 Energy Balance Plot during February 2017

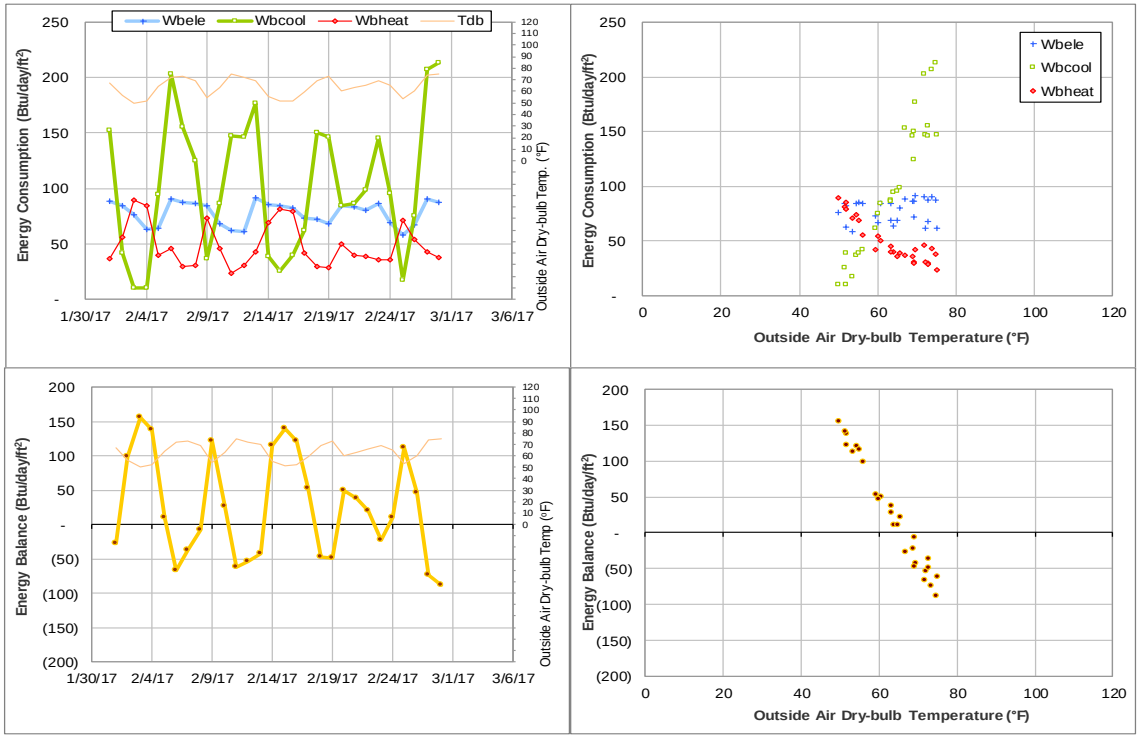



Figure IV-169 Physical Education Activity Program Building TAMU BLDG # 1540 Energy Balance Plot during February 2017

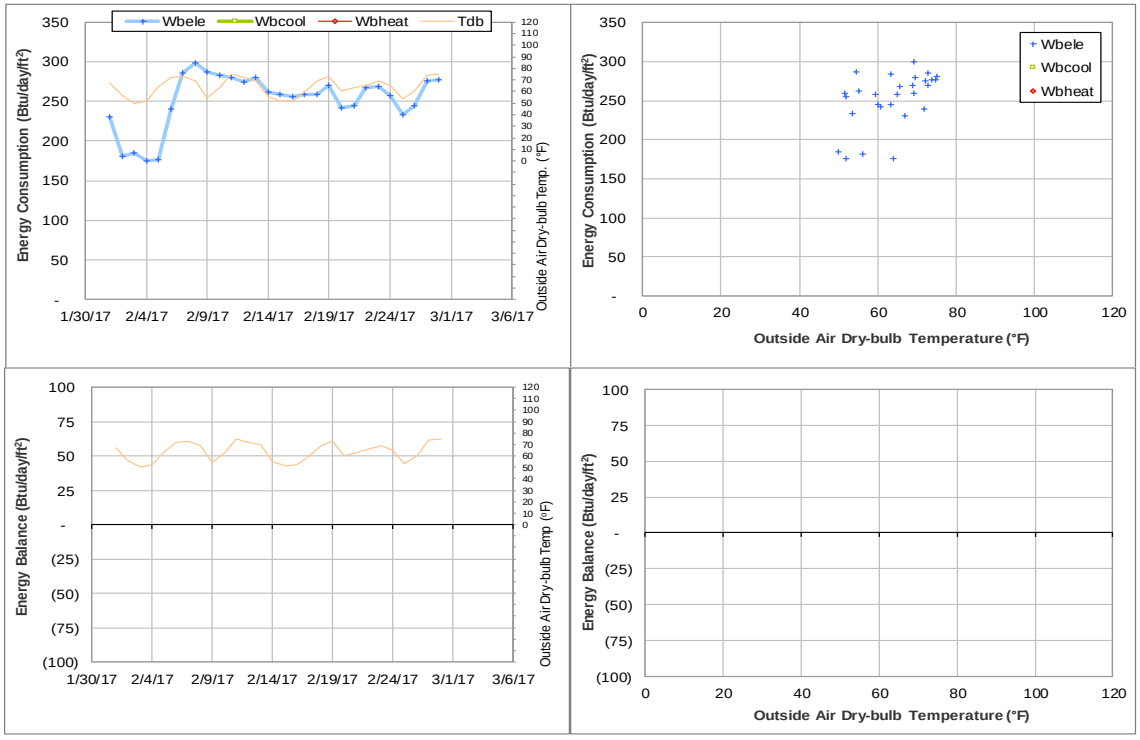



Figure IV-170 Human Clinical Research Building TAMU BLDG # 1542 Energy Balance Plot during February 2017

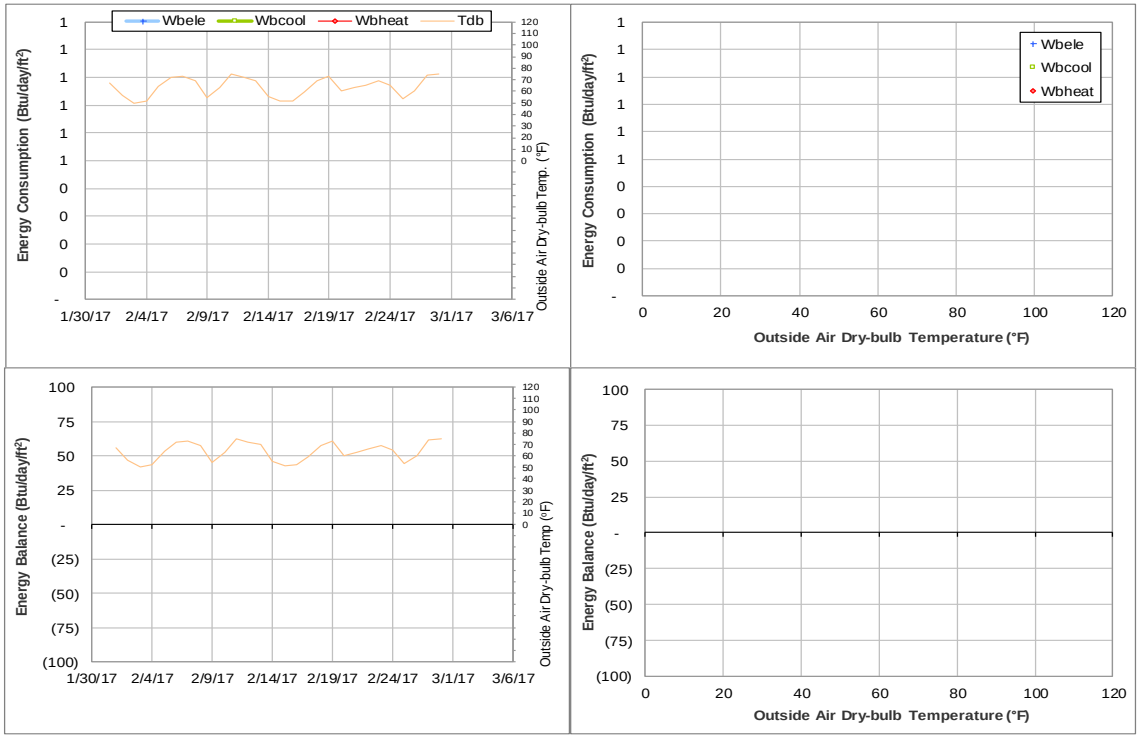



Figure IV-171 Cain Garage TAMU BLDG # 1544 Energy Balance Plot during February 2017

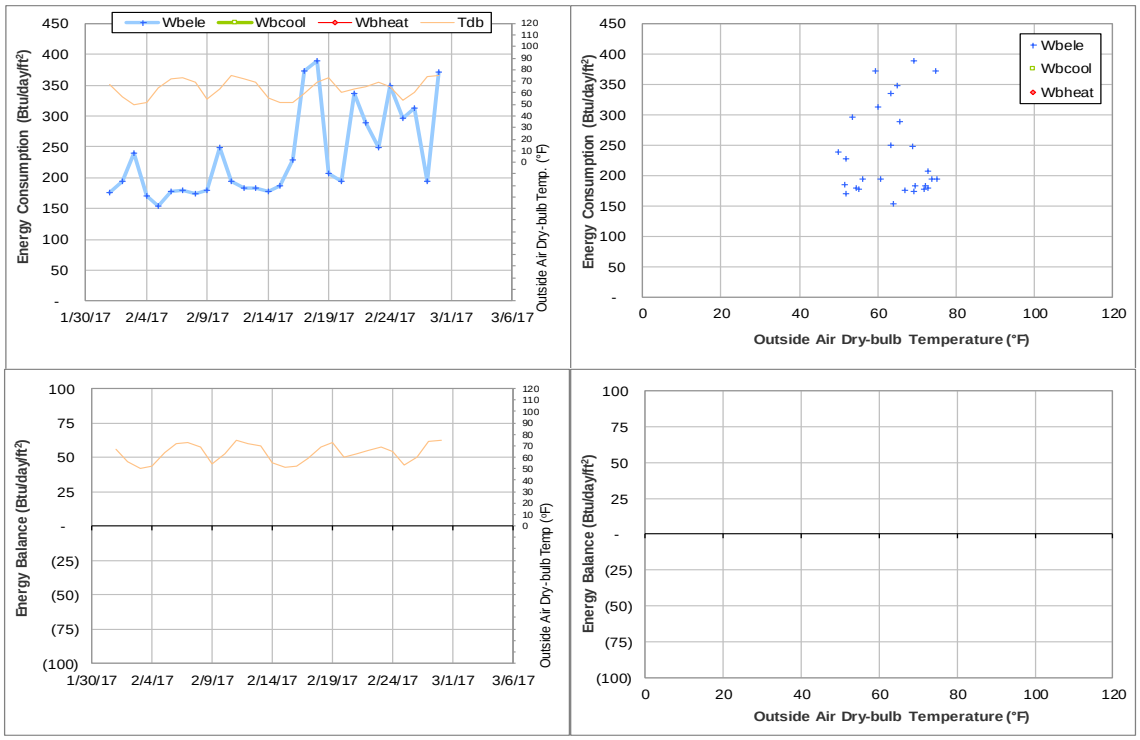



Figure IV-172 Olsen Field at Bluebell Park TAMU BLDG # 1550 Energy Balance Plot during February 2017

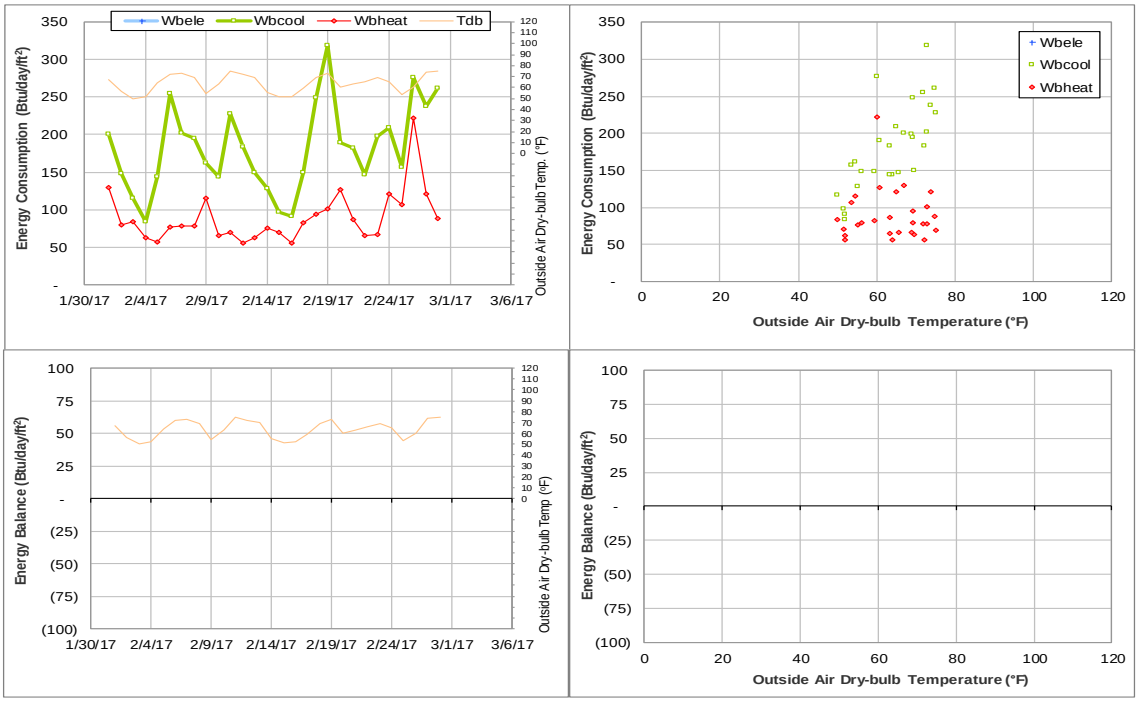



Figure IV-173 Reed Arena and Cox-McFerrin Center TAMU BLDG # 1554 and 1558 Energy Balance Plot during February 2017

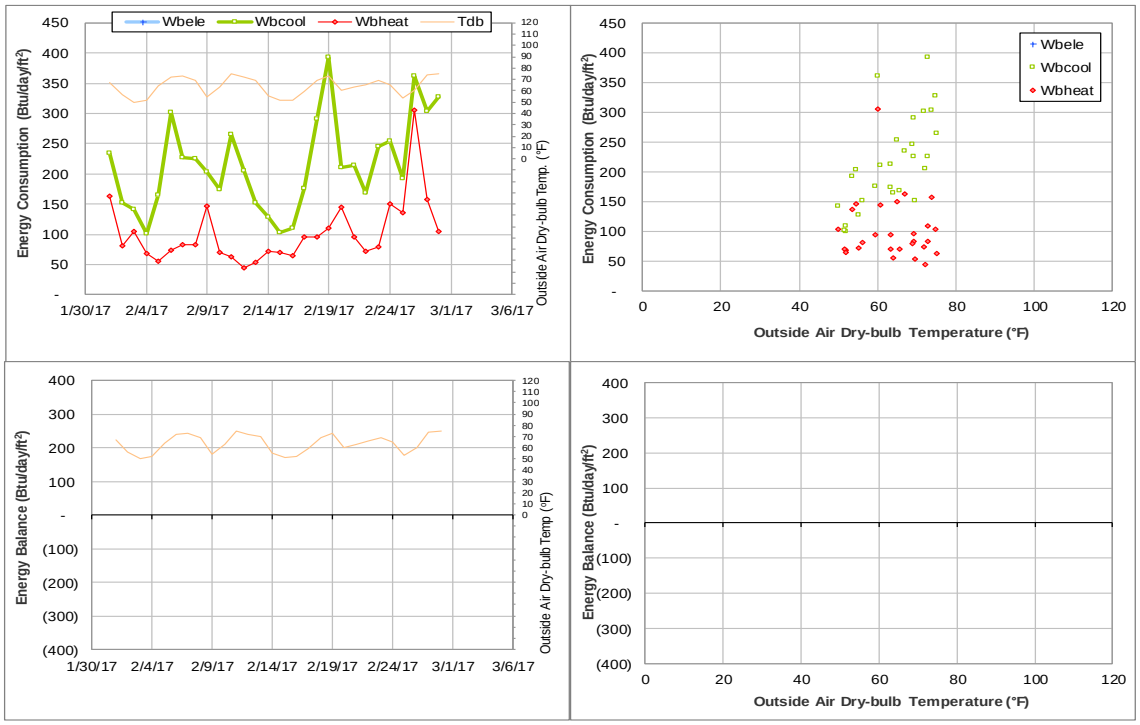



Figure IV-174 Reed Arena TAMU BLDG # 1554 Energy Balance Plot during February 2017

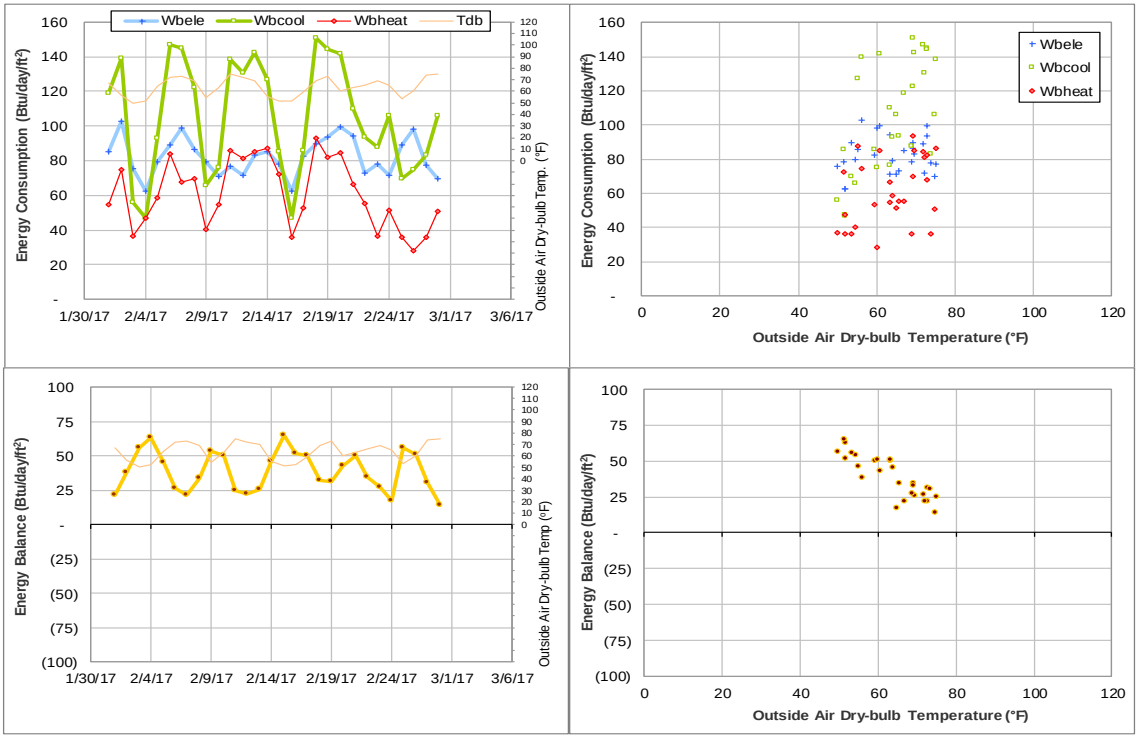



Figure IV-175 Cox-McFerrin Center for Aggie Basketball TAMU BLDG # 1558 Energy Balance Plot during February 2017

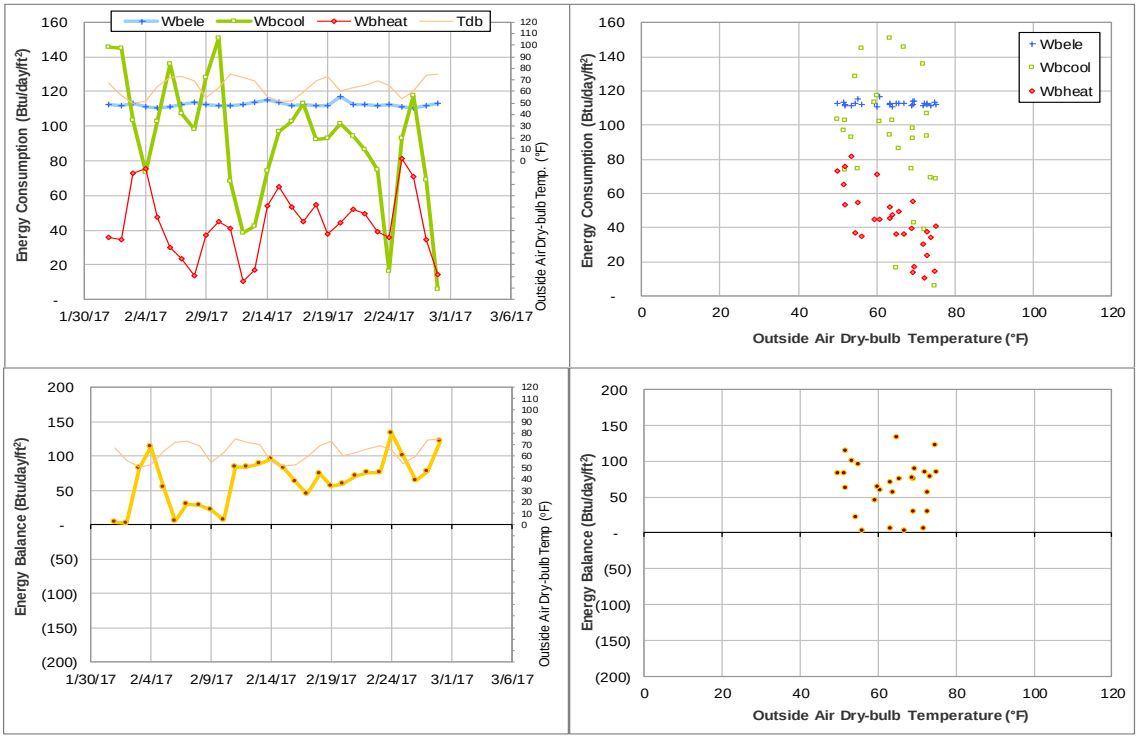



Figure IV-176 West Campus Parking Garage TAMU BLDG # 1559 Energy Balance Plot during February 2017

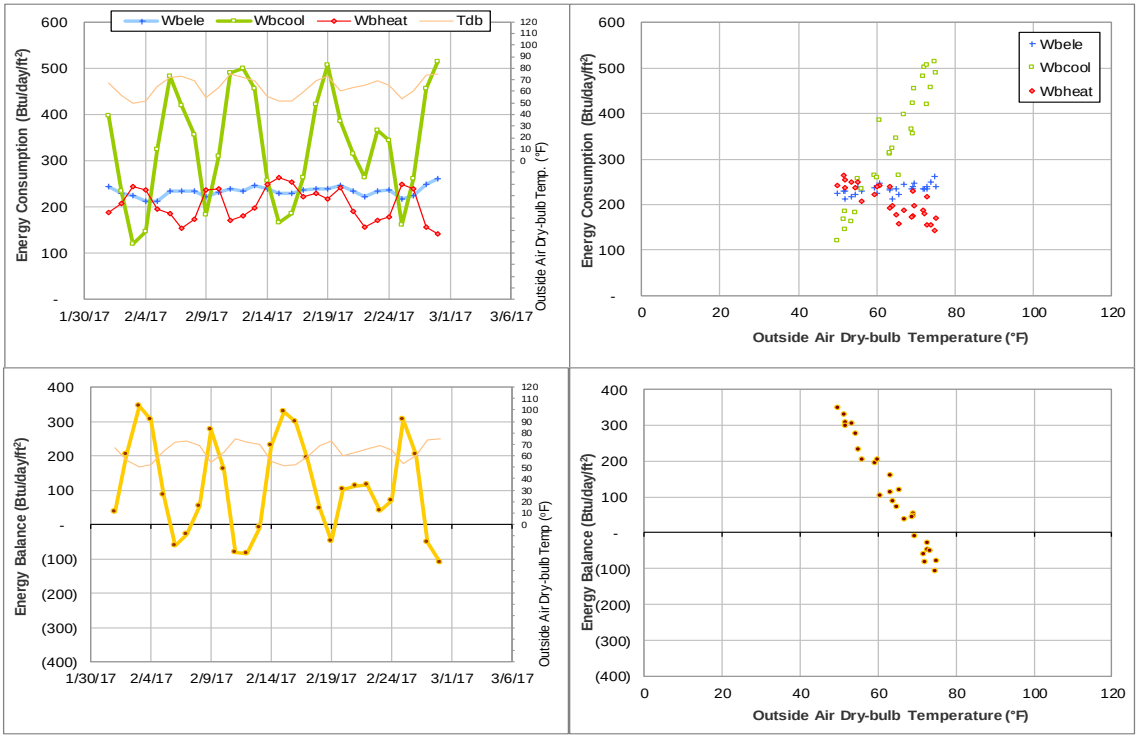



Figure IV-177 Student Recreation Center TAMU BLDG # 1560 Energy Balance Plot during February 2017

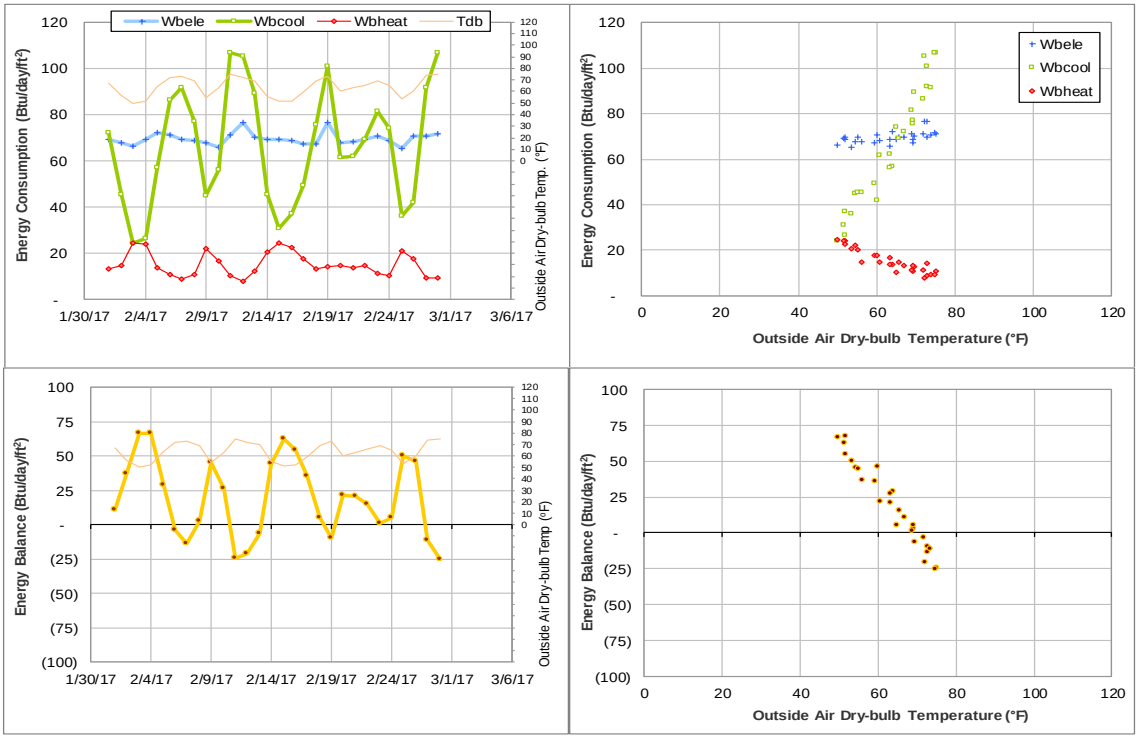



Figure IV-178 White Creek Apartment 1 and White Creek Apts Activity Center TAMU BLDG # 1589 Energy Balance Plot during February 2017

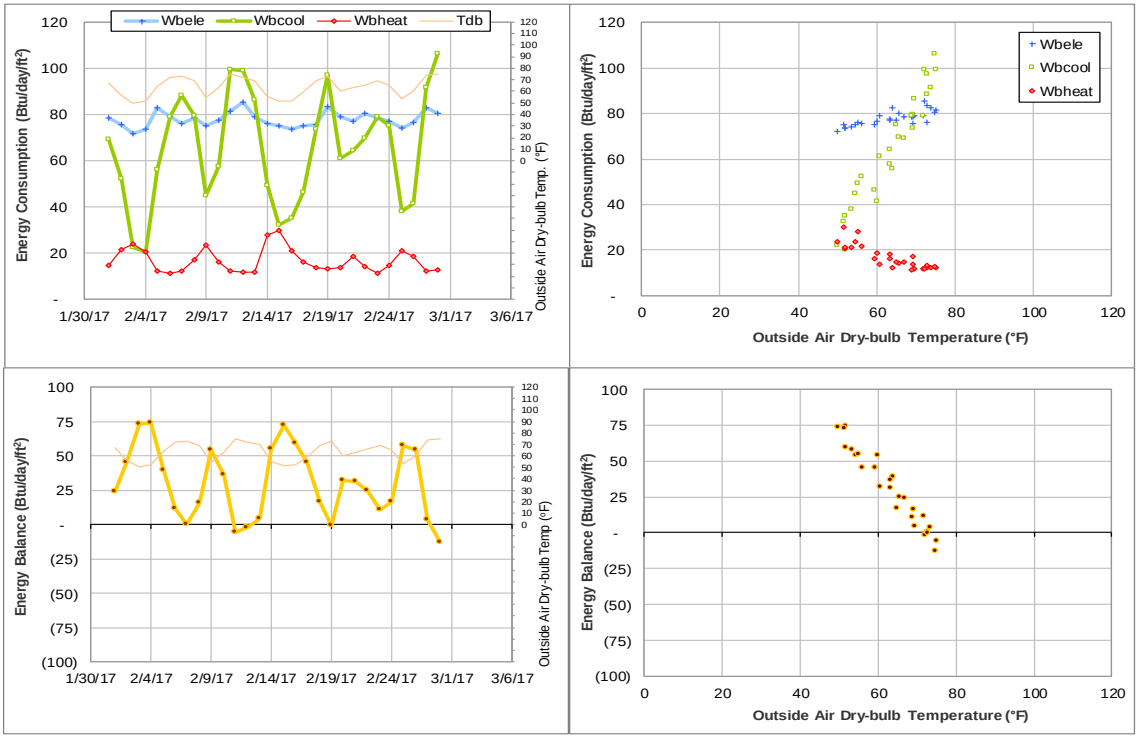



Figure IV-179 White Creek Apartment 2 TAMU BLDG # 1591 Energy Balance Plot during February 2017

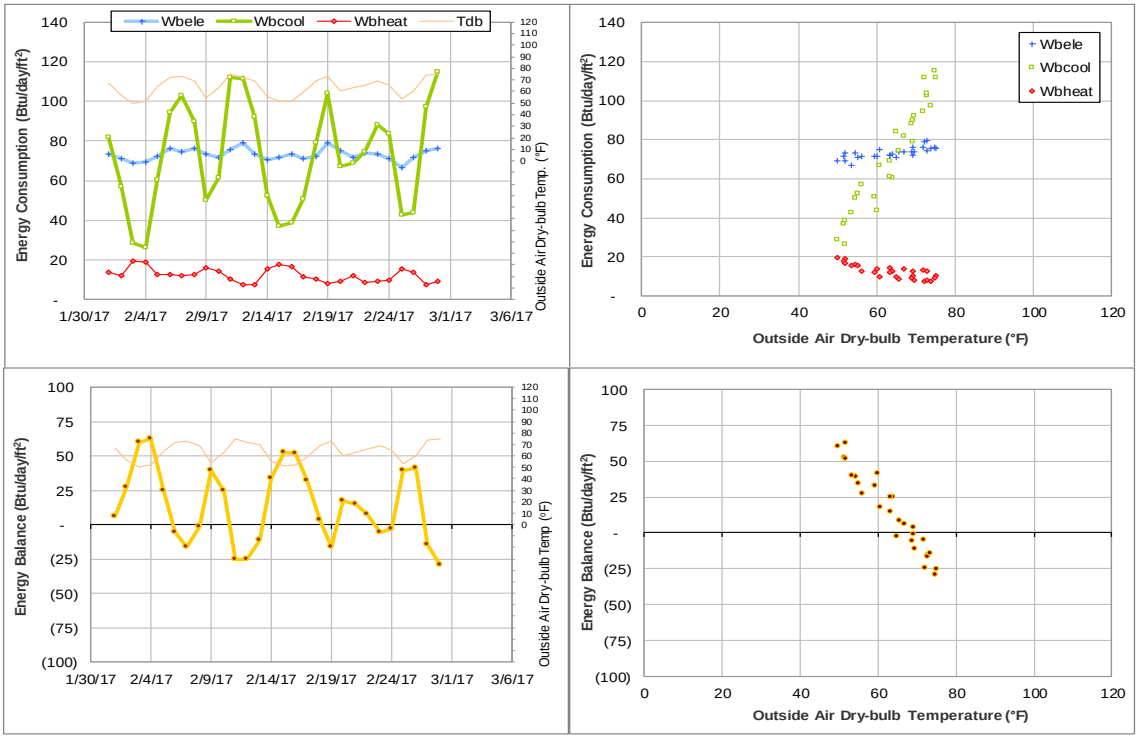



Figure IV-180 White Creek Apartment 3 TAMU BLDG # 1592 Energy Balance Plot during February 2017

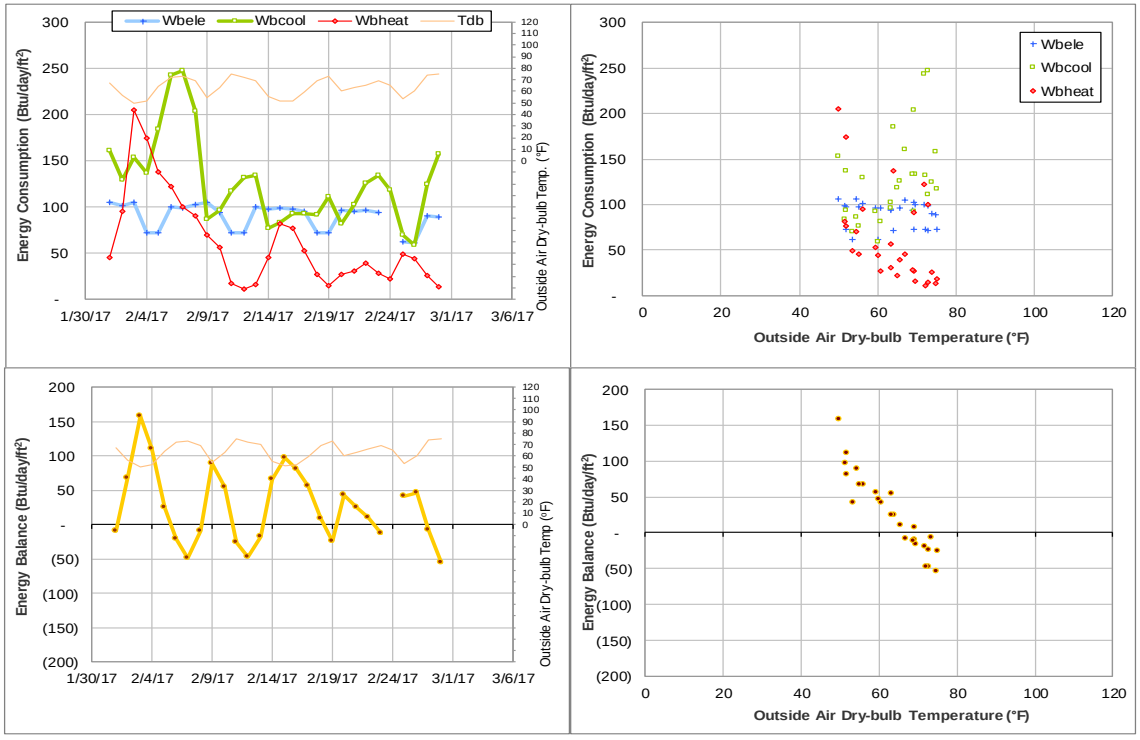



Figure IV-181 Gilchrist TTI Building TAMU BLDG # 1600 Energy Balance Plot during February 2017

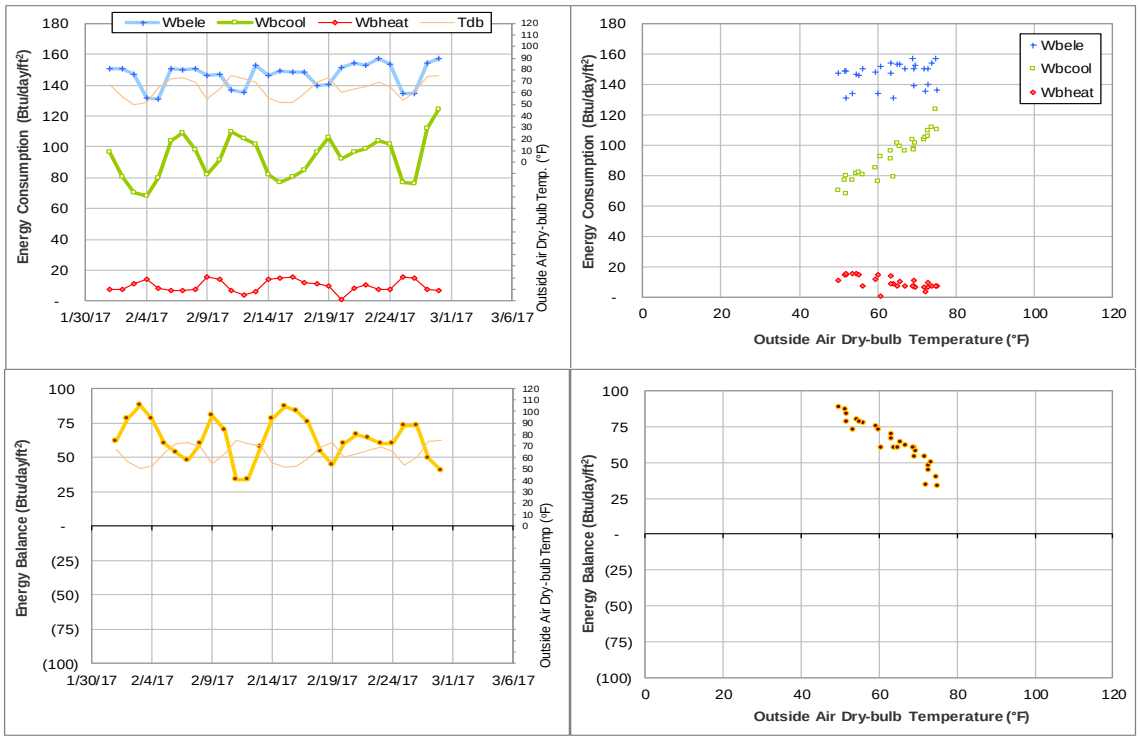



Figure IV-182 International Ocean Discovery Building TAMU BLDG # 1601 Energy Balance Plot during February 2017

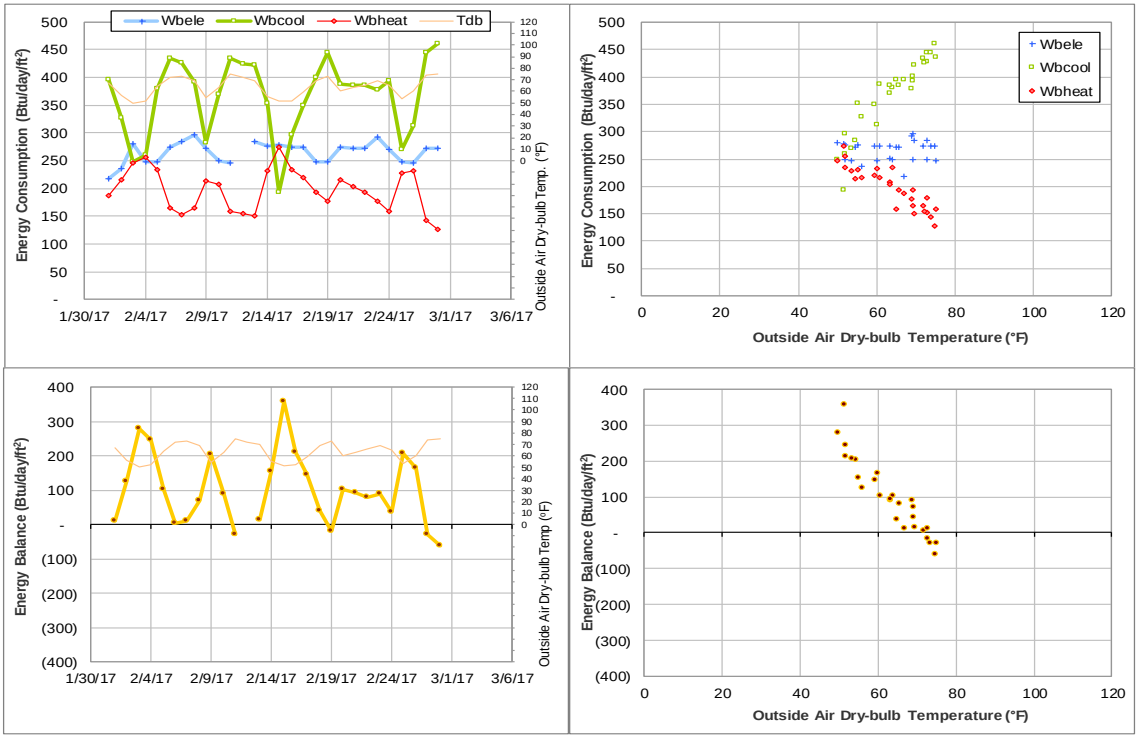



Figure IV-183 Offshore Technology Research Center TAMU BLDG # 1604 Energy Balance Plot during February 2017

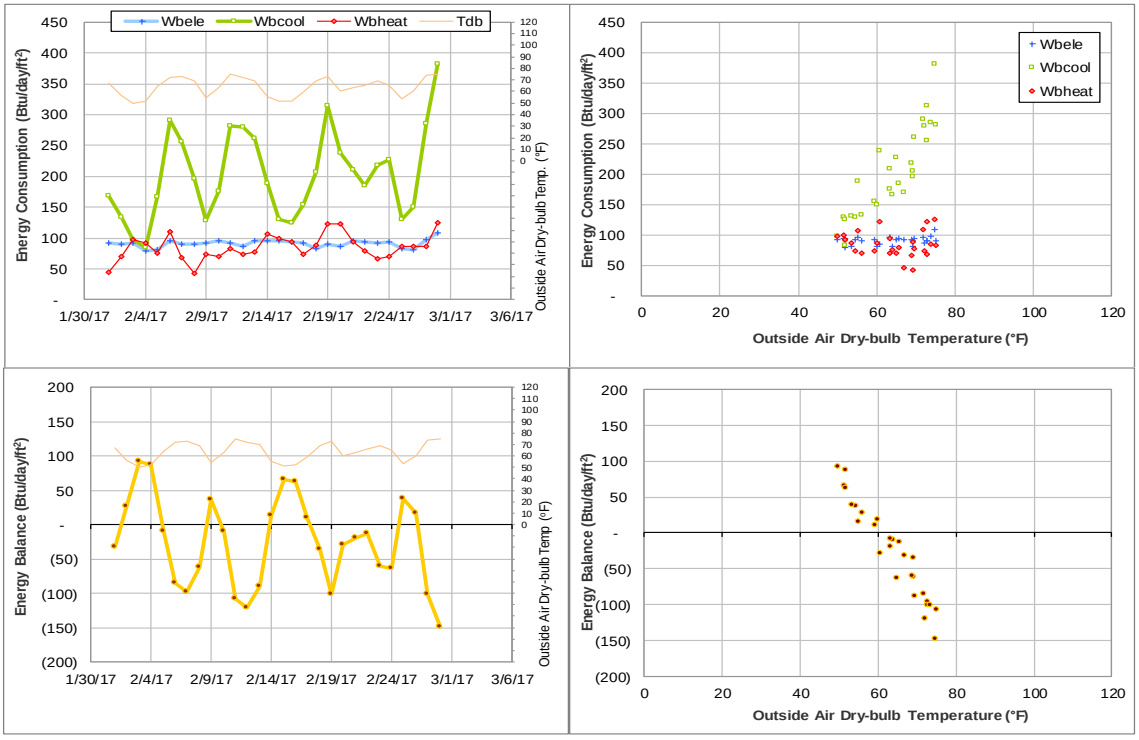



Figure IV-184 George Bush Presidential Library & Museum TAMU BLDG # 1606 Energy Balance Plot during February 2017

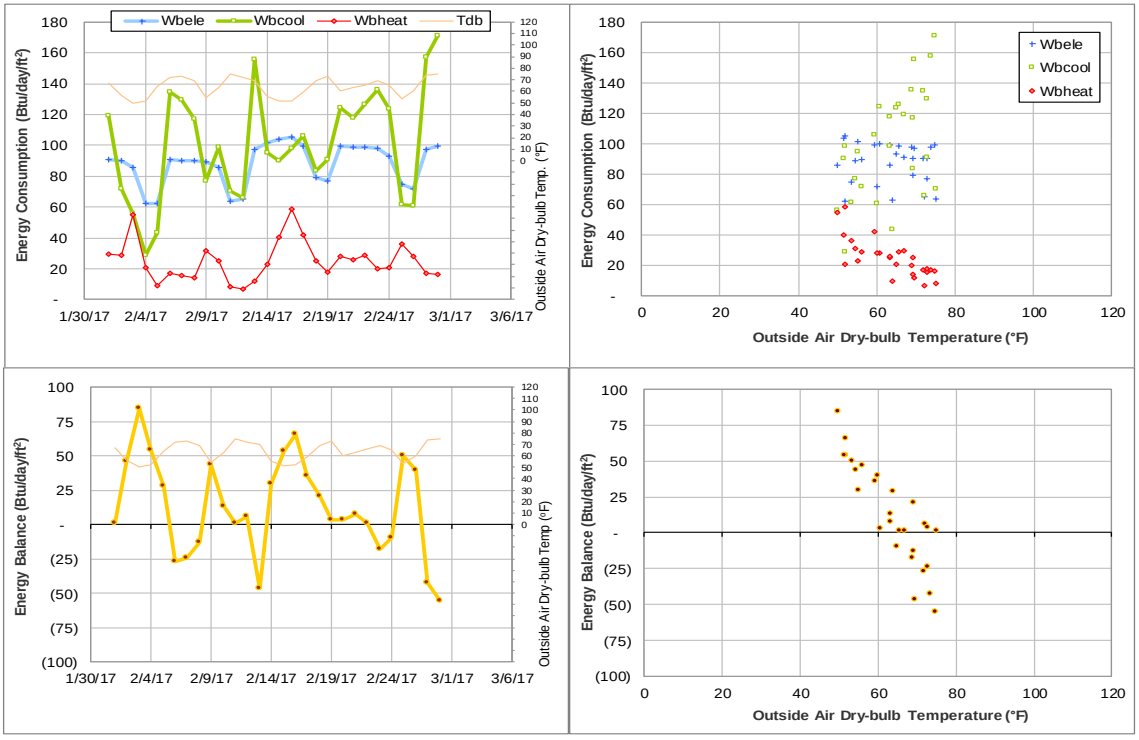



Figure IV-185 Allen Building TAMU BLDG # 1607 Energy Balance Plot during February 2017

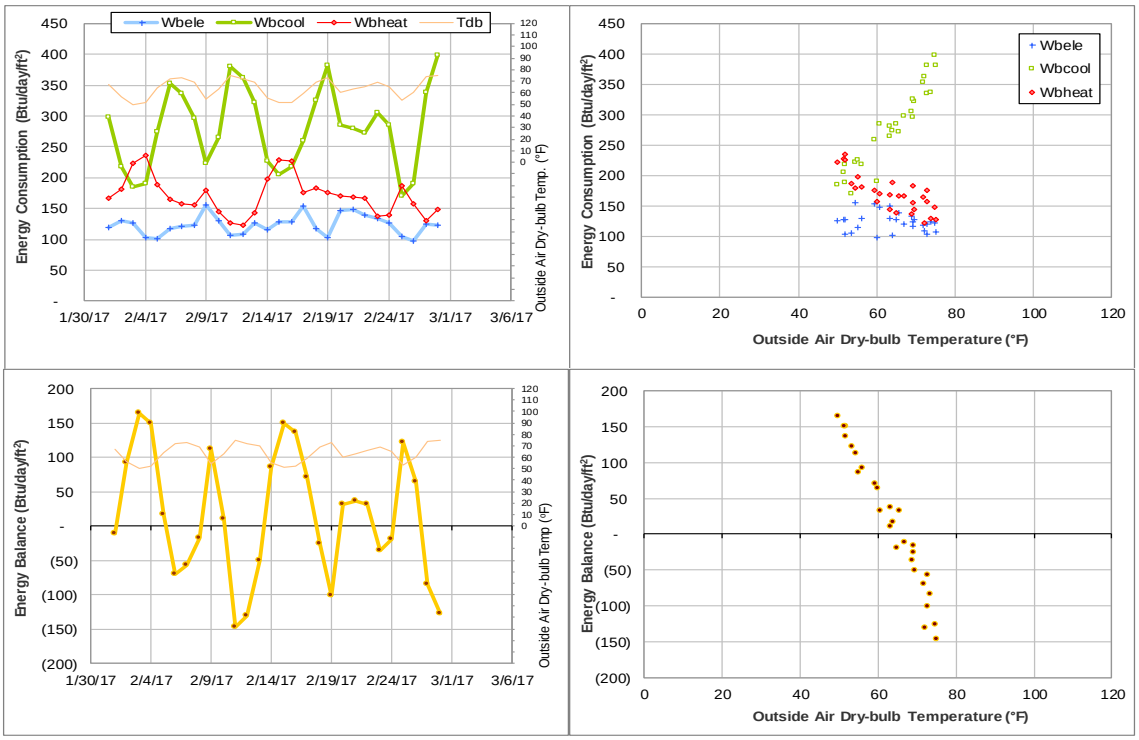



Figure IV-186 Annenberg Presidential Conference Center TAMU BLDG # 1608 Energy Balance Plot during February 2017

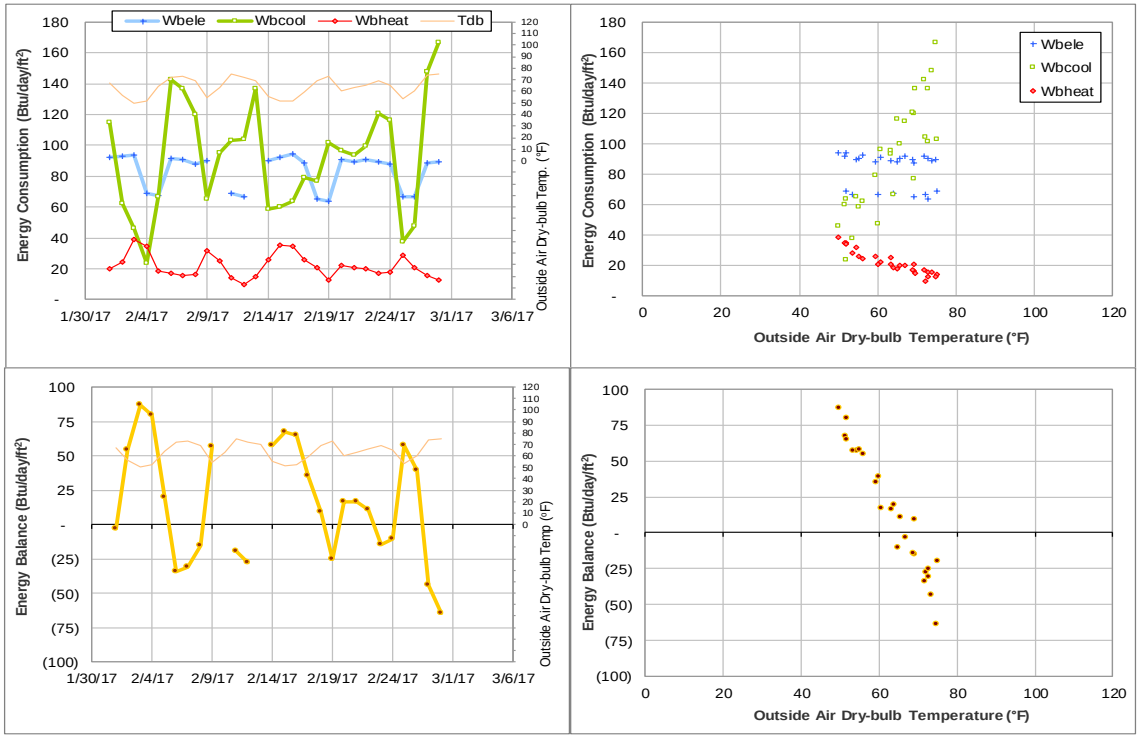



Figure IV-187 TTI Headquarters TAMU BLDG # 1609 Energy Balance Plot during February 2017

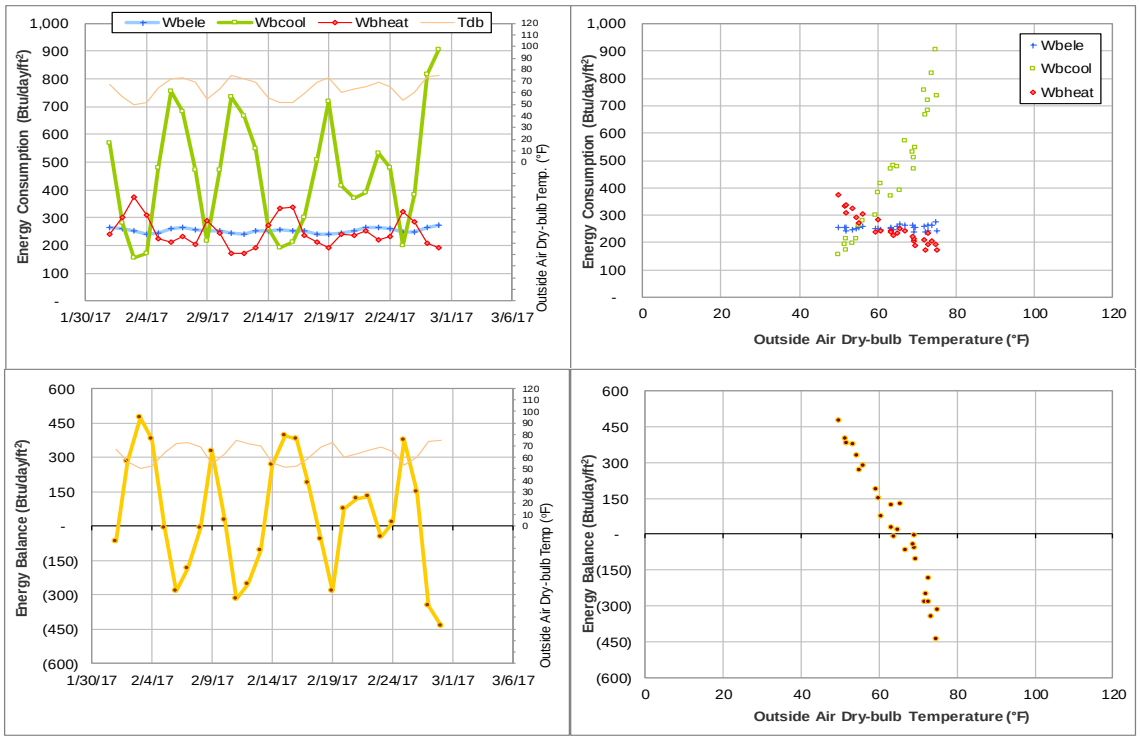



Figure IV-188 Engineering Research Building TAMU BLDG # 1611 Energy Balance Plot during February 2017

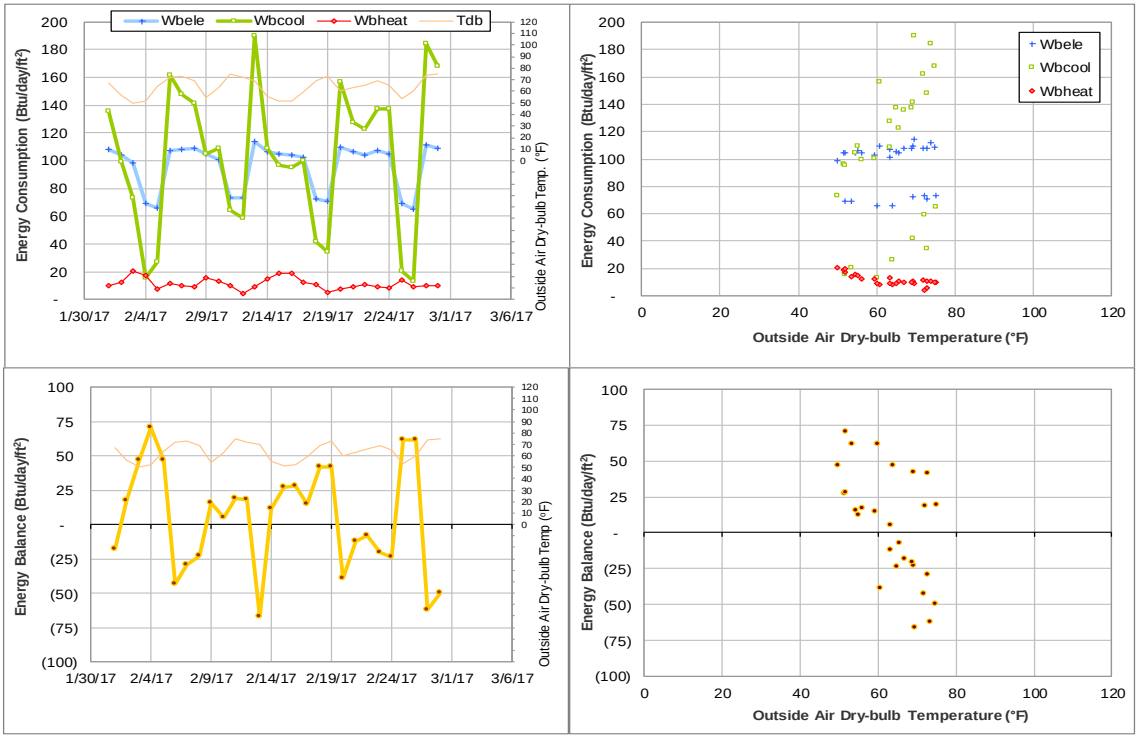



Figure IV-189 General Services Complex TAMU BLDG # 1800 Energy Balance Plot during February 2017

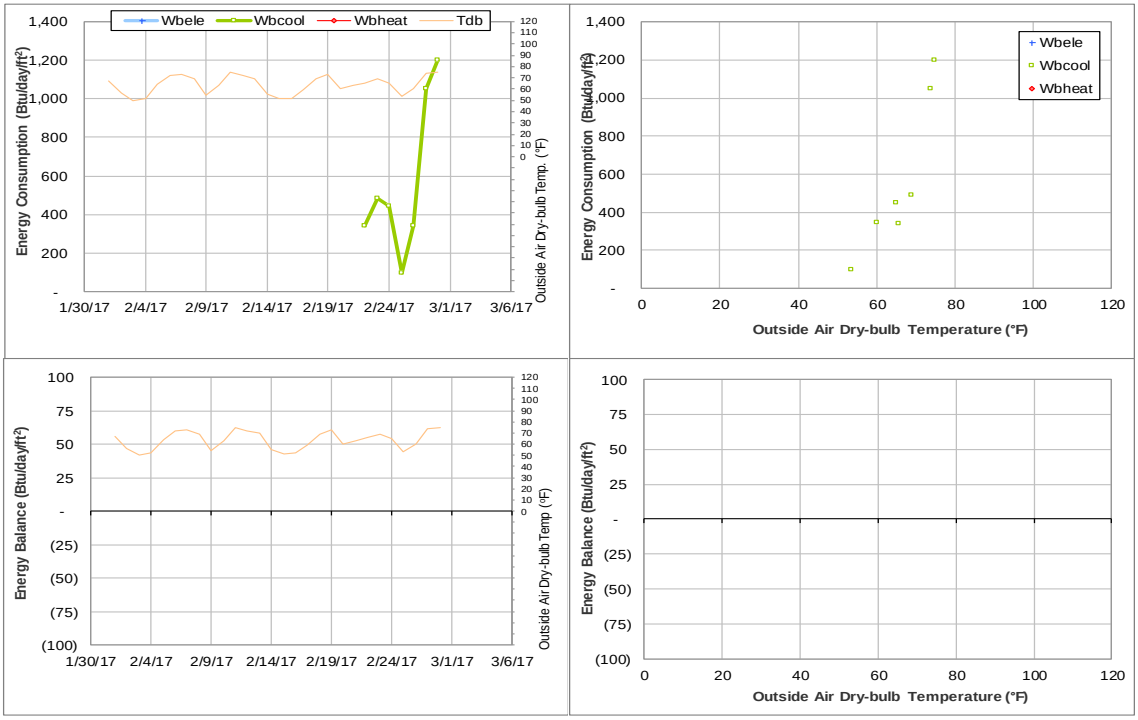



Figure IV-190 New TVMDL TAMU BLDG # 1809 Energy Balance Plot during February 2017

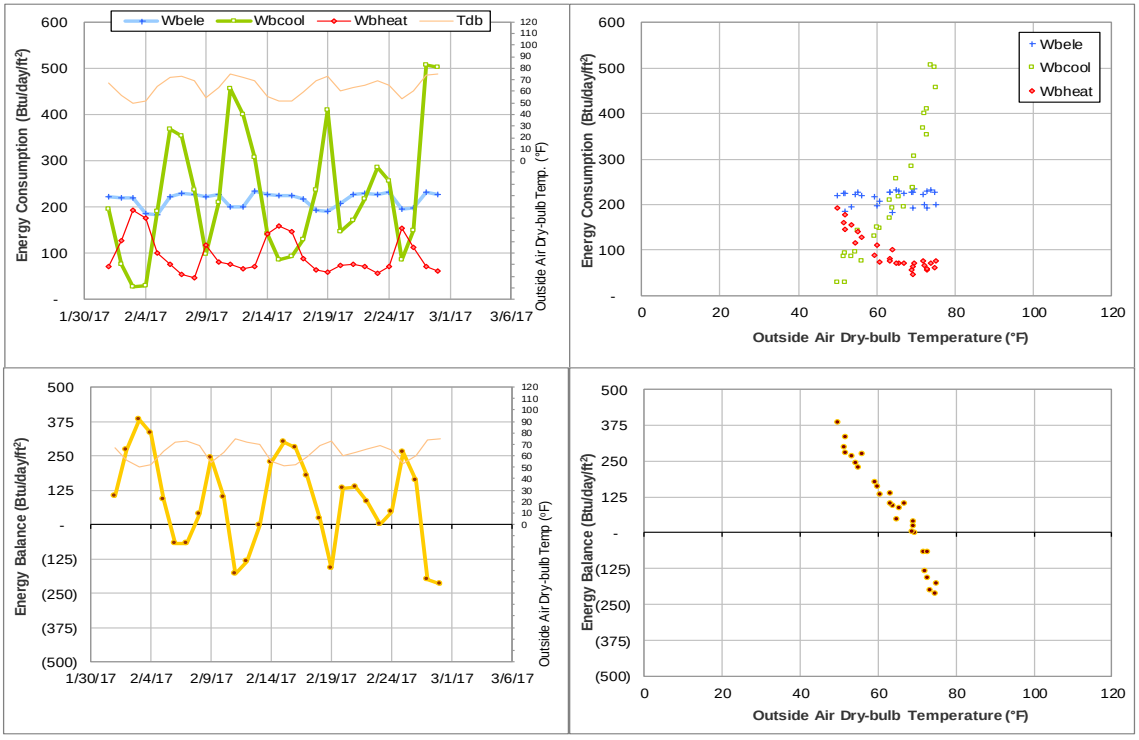



Figure IV-191 Office of the State Chemist Building TAMU BLDG # 1810 Energy Balance Plot during February 2017

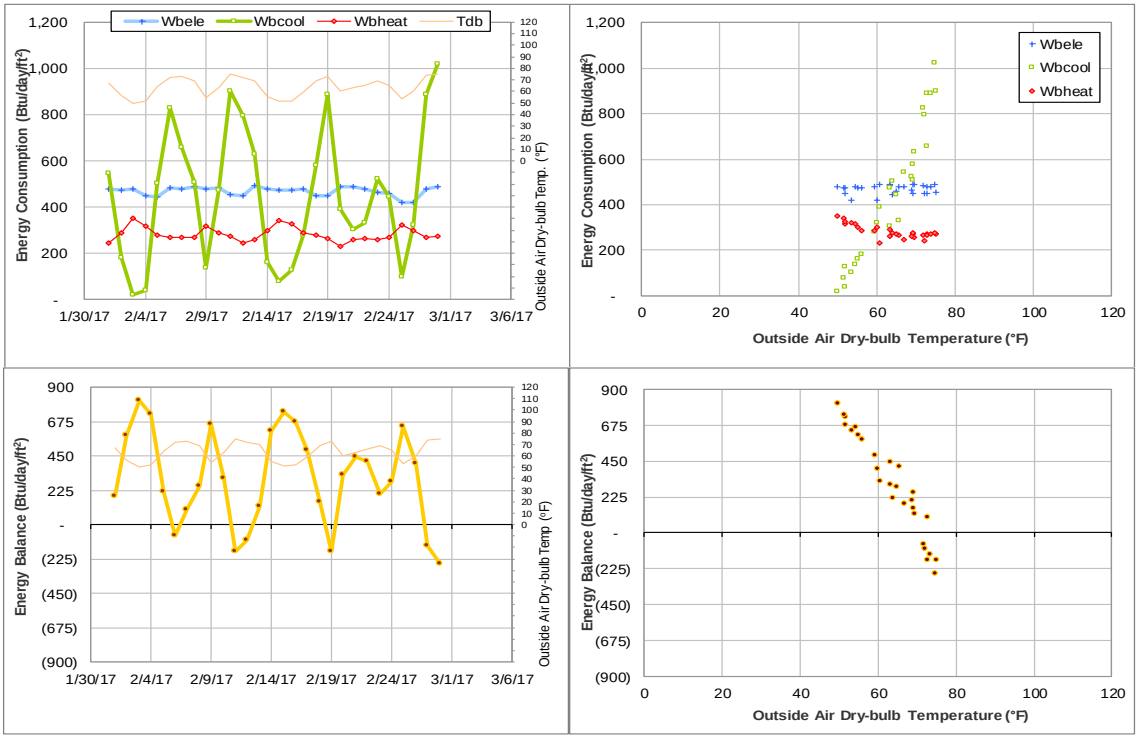



Figure IV-192 Vet Med Research Bldg Addition TAMU BLDG # 1811 Energy Balance Plot during February 2017

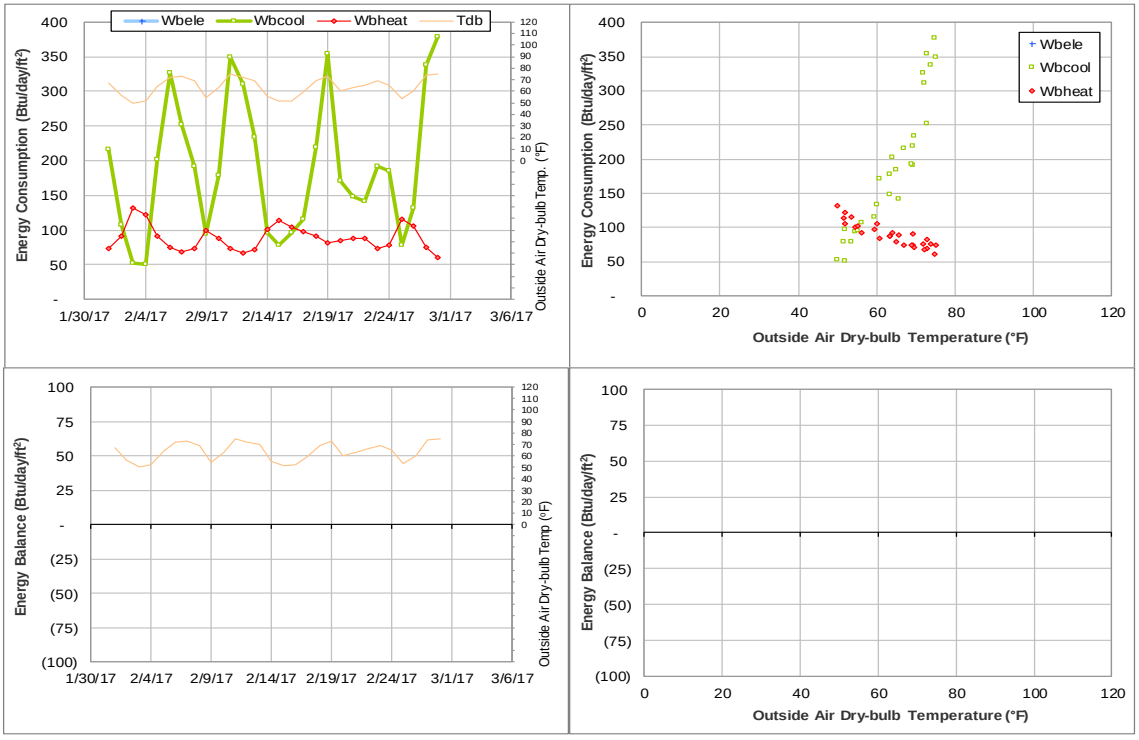



Figure IV-193 Veterinary Medicine Building 1, 2, and 3 TAMU BLDG # 1812 Energy Balance Plot during February 2017

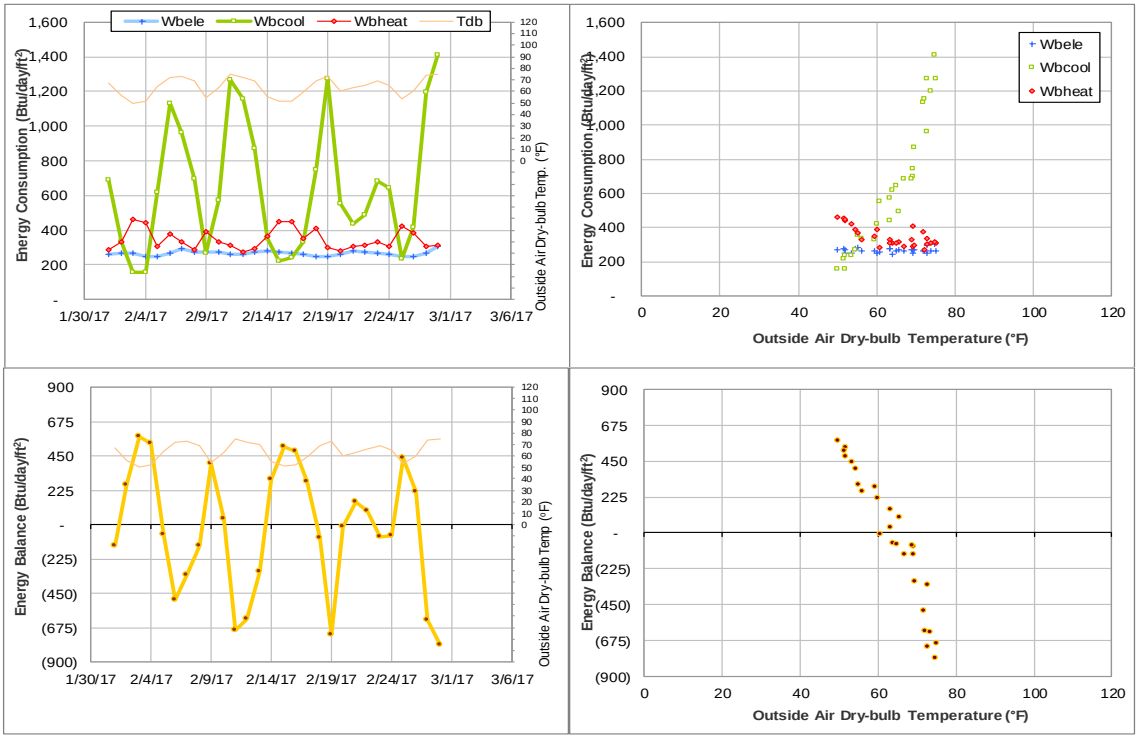



Figure IV-194 Texas Institute for Genomic Medicine TAMU BLDG # 1900 Energy Balance Plot during February 2017

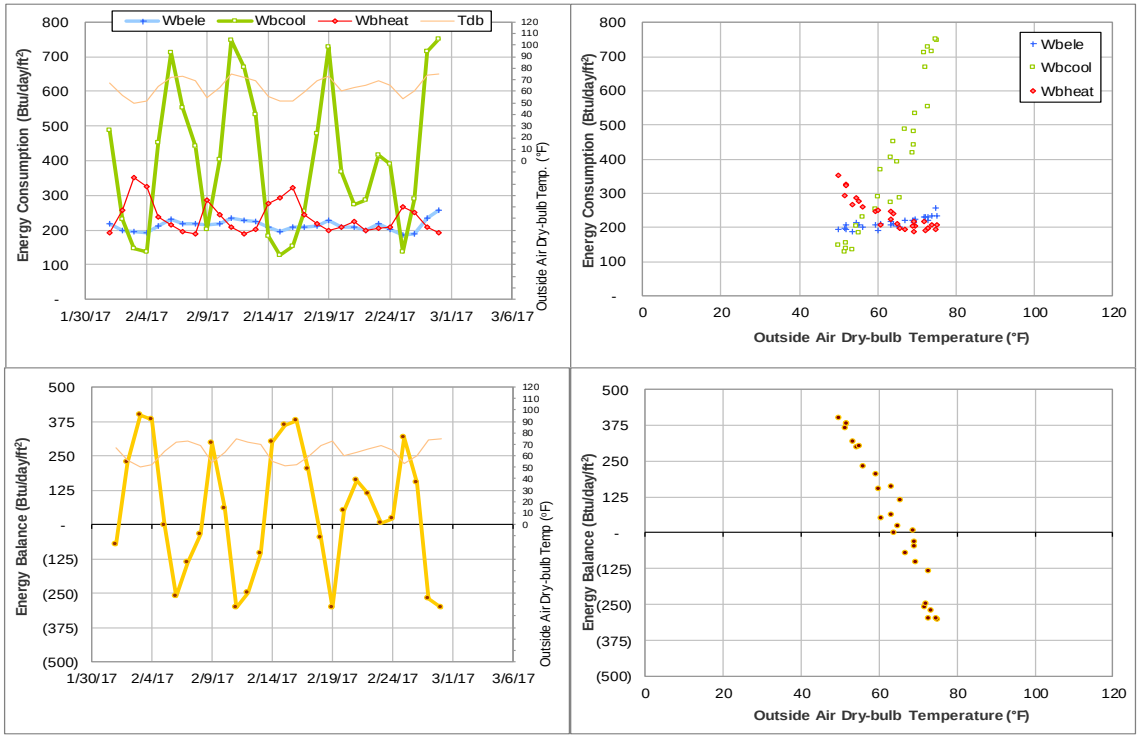



Figure IV-195 Texas A&M Institute for Preclinical Studies A TAMU BLDG # 1904 Energy Balance Plot during February 2017

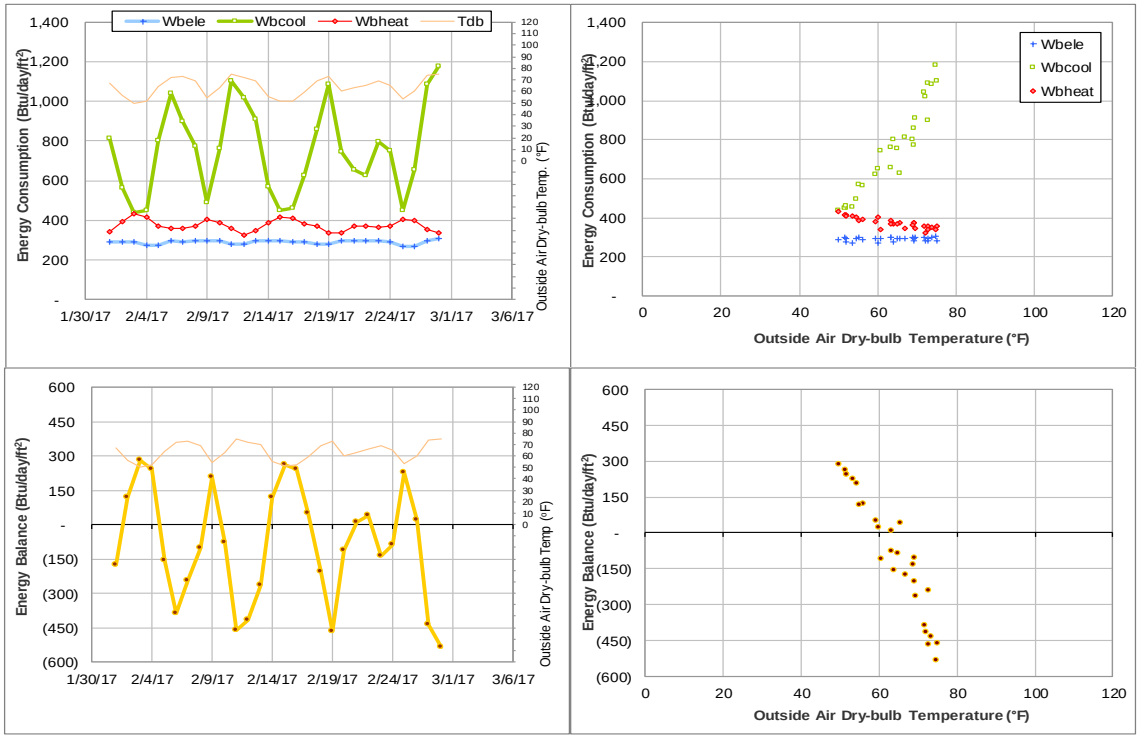



Figure IV-196 National Center for Therapeutics Manufacturing TAMU BLDG # 1910 Energy Balance Plot during February 2017

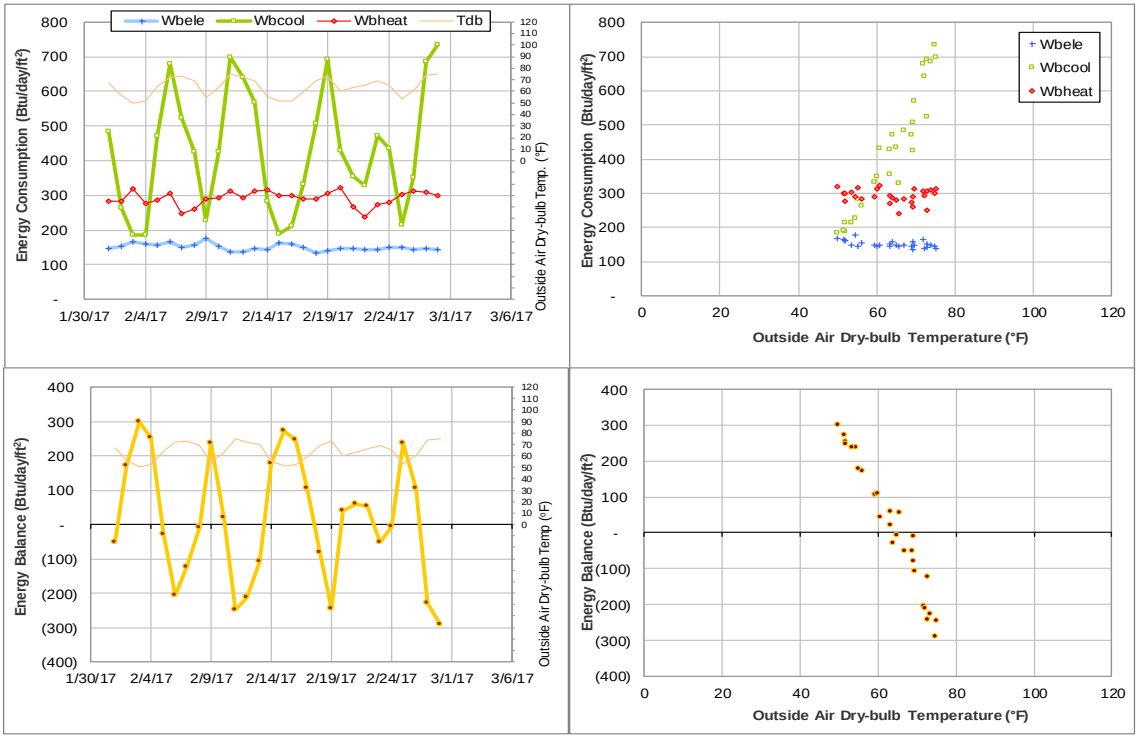



Figure IV-197 Multi-Species Research Building TAMU BLDG # 1911 Energy Balance Plot during February 2017

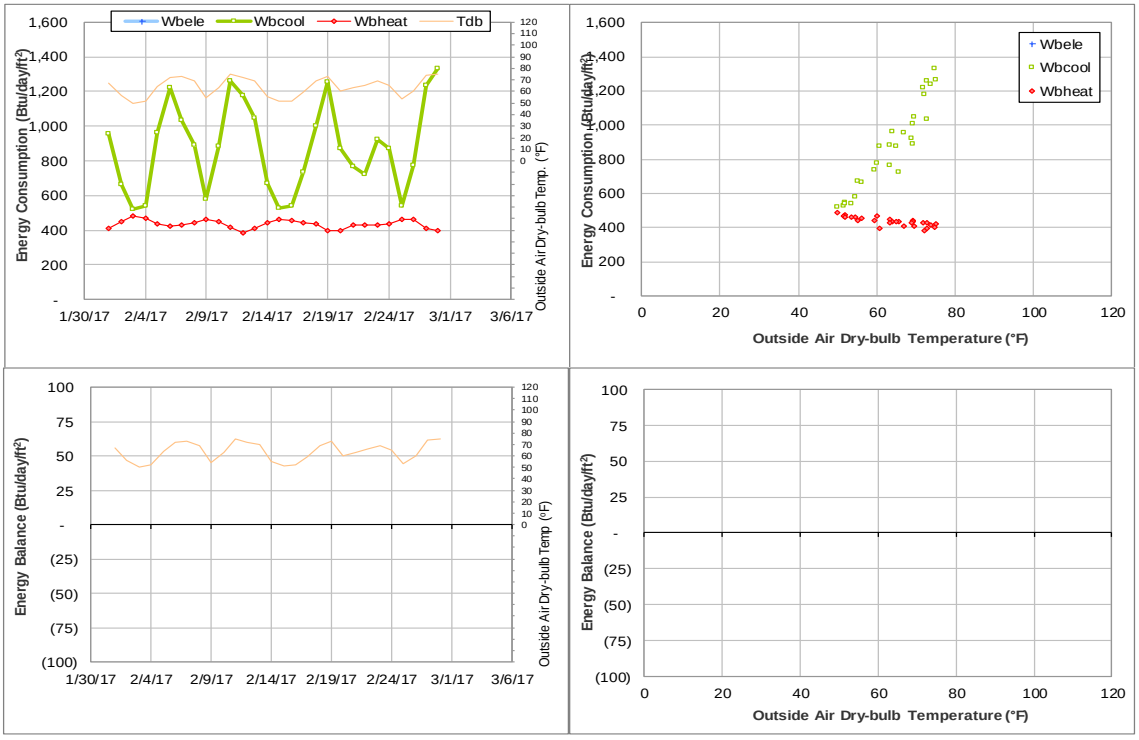



Figure IV-198 NCTM Manufacturing Building TAMU BLDG # 10226 Energy Balance Plot during February 2017

# V. Energy Balance Plots with Filled-in data for February 2017 Consumption

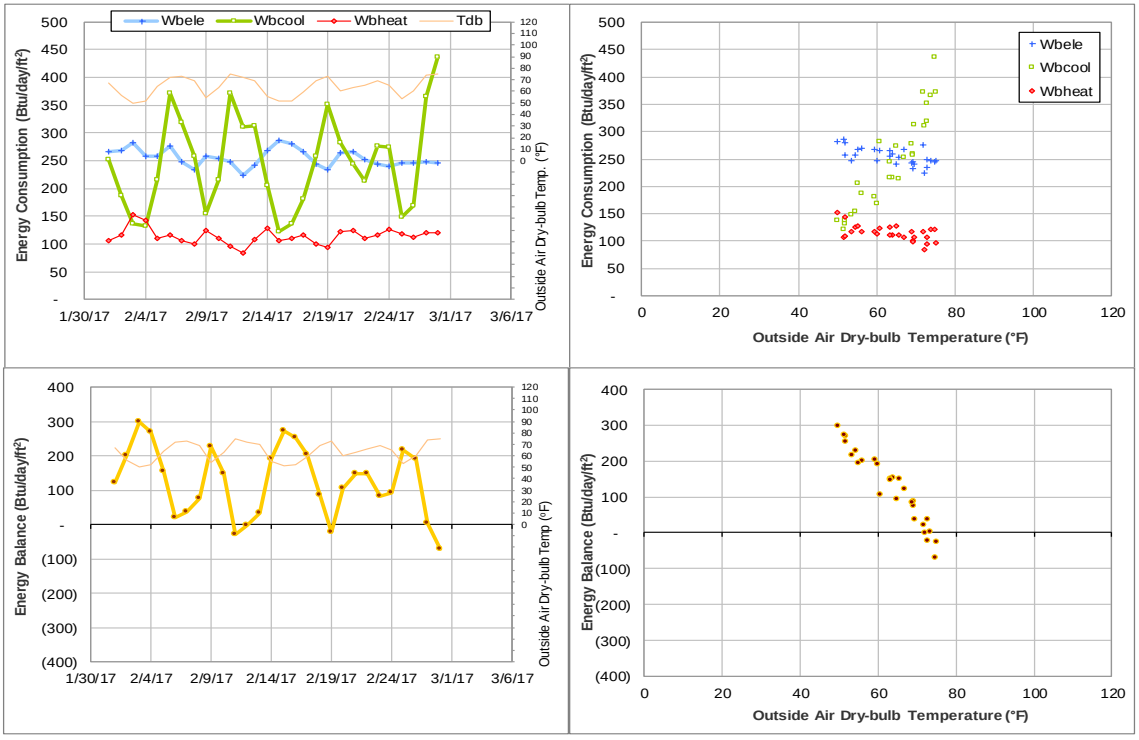



Figure V-1 Kyle Field TAMU BLDG # 367 Energy Balance Plot during February 2017

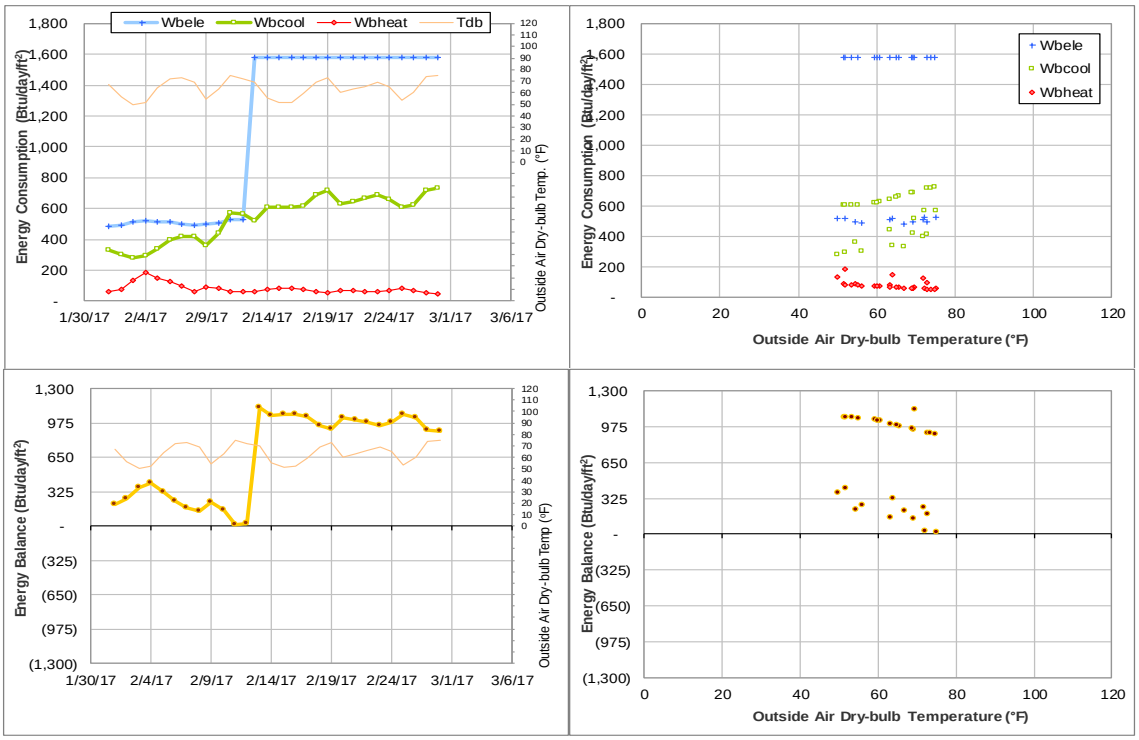



Figure V-2 Luedecke Building (Cyclotron) TAMU BLDG # 434 Energy Balance Plot during February 2017

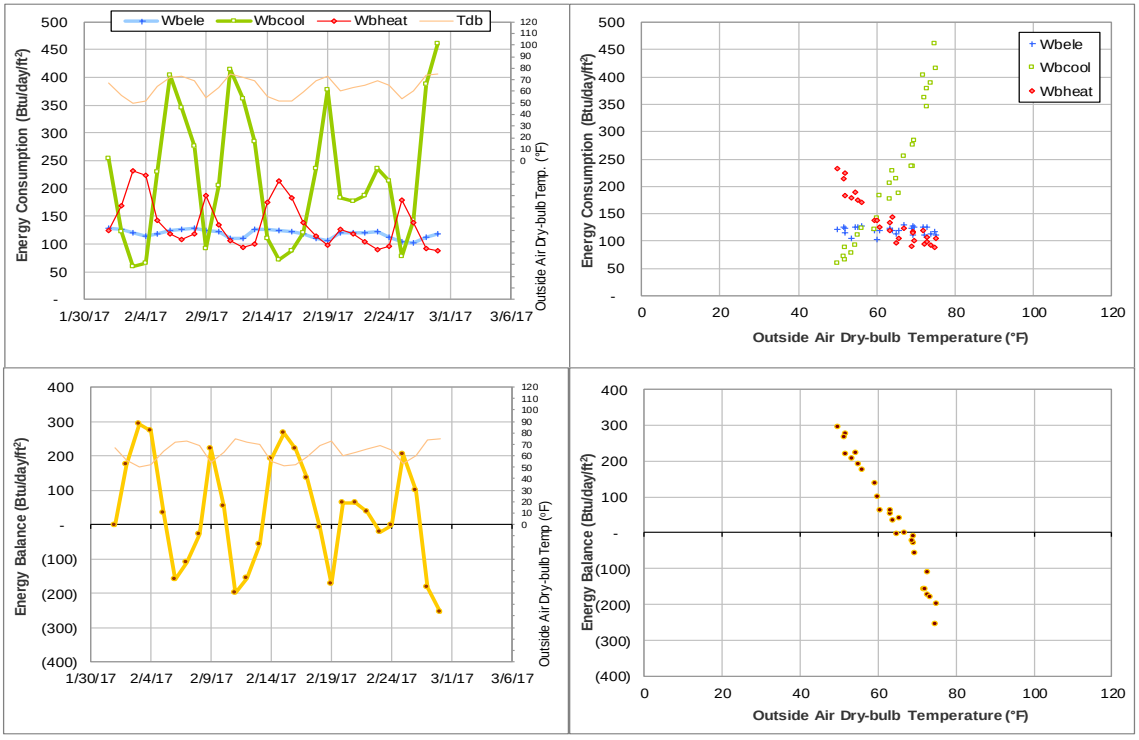



Figure V-3 Reed-McDonald and Engineering Innovation Center TAMU BLDG # 436 Energy Balance Plot during February 2017

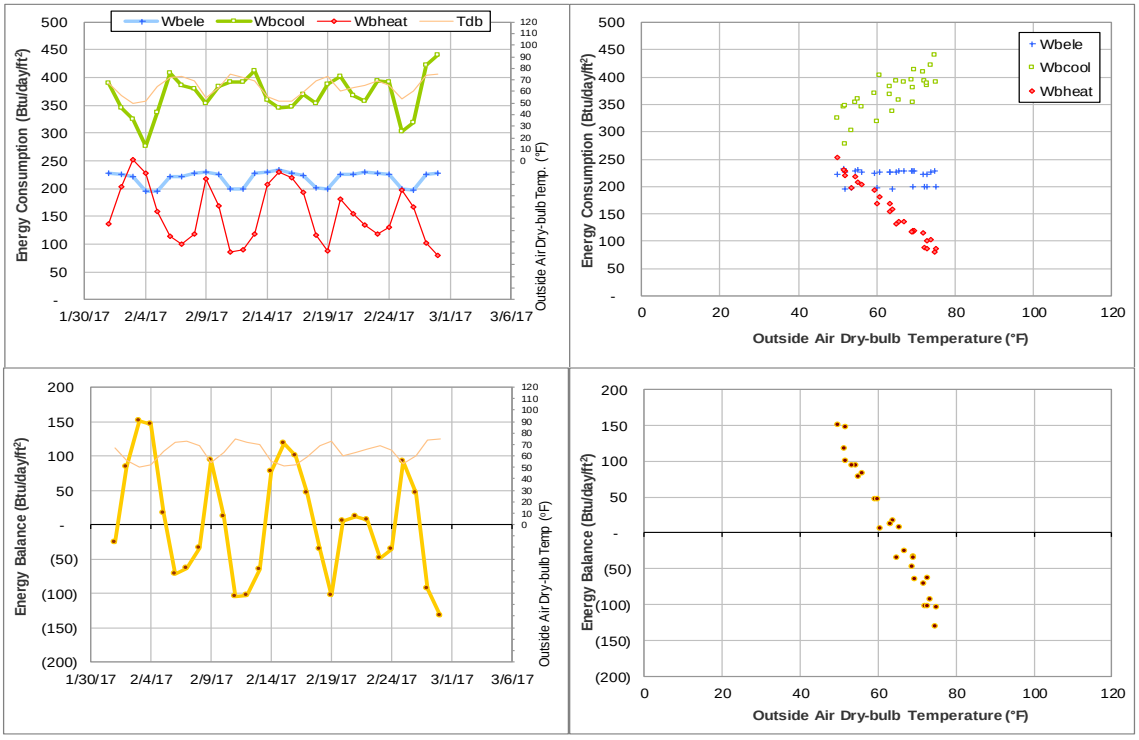



Figure V-4 Peterson Building TAMU BLDG # 444 Energy Balance Plot during February 2017

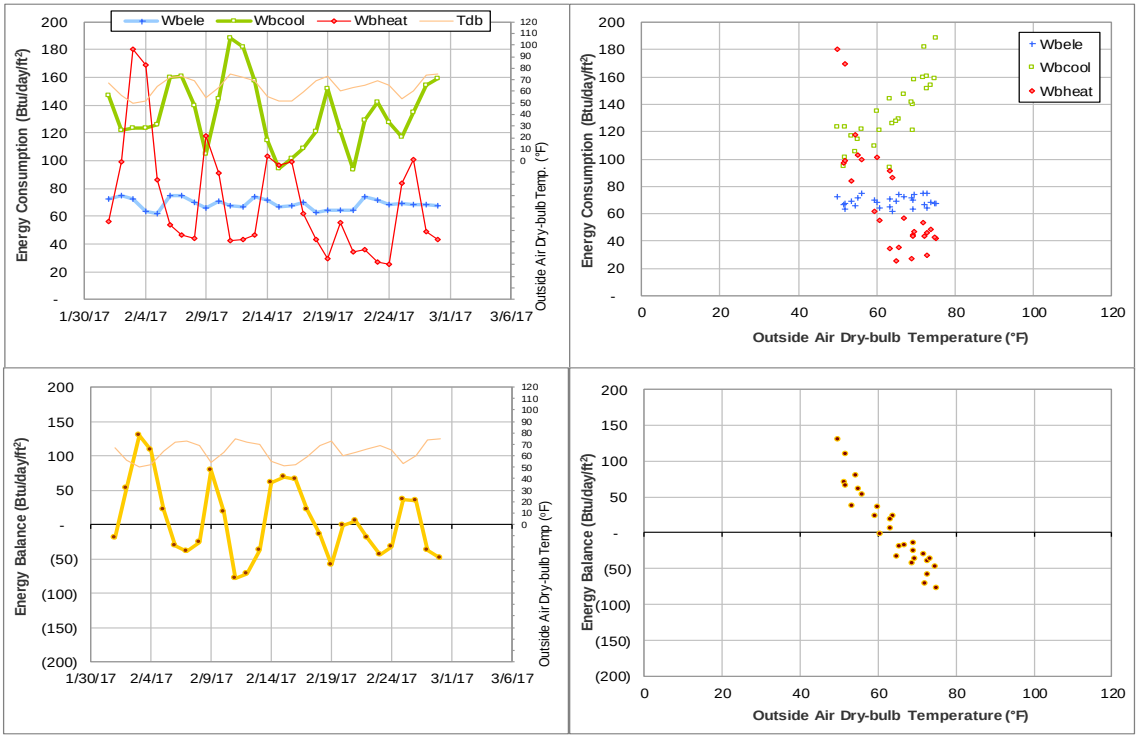



Figure V-5 Rudder Tower and Theatre Complex TAMU BLDG # 446 Energy Balance Plot during February 2017

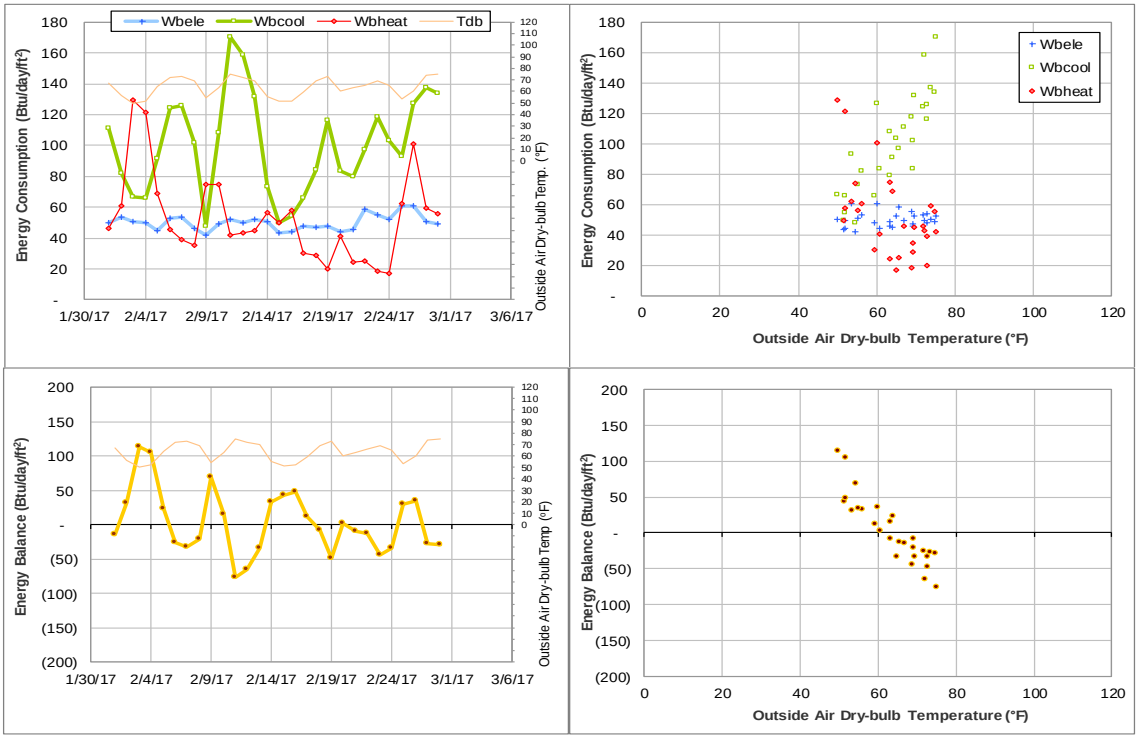



Figure V-6 Rudder Theatre Complex TAMU BLDG # 446 Energy Balance Plot during February 2017

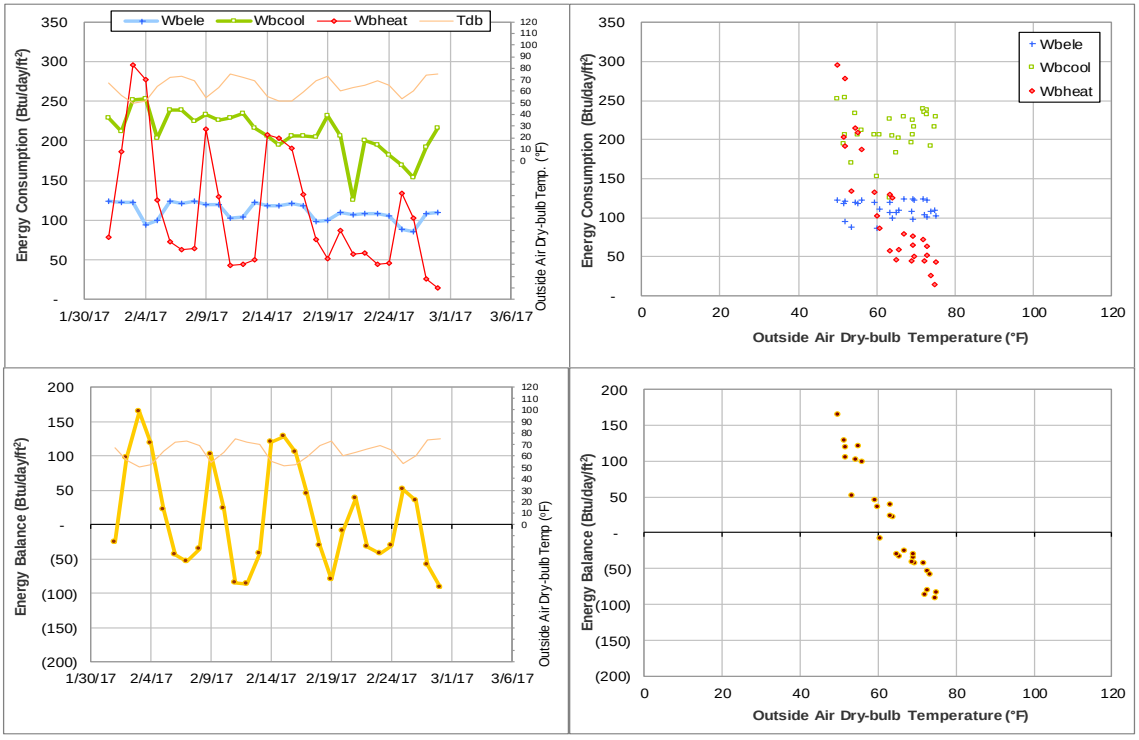



Figure V-7 Rudder Tower TAMU BLDG # 446 Energy Balance Plot during February 2017

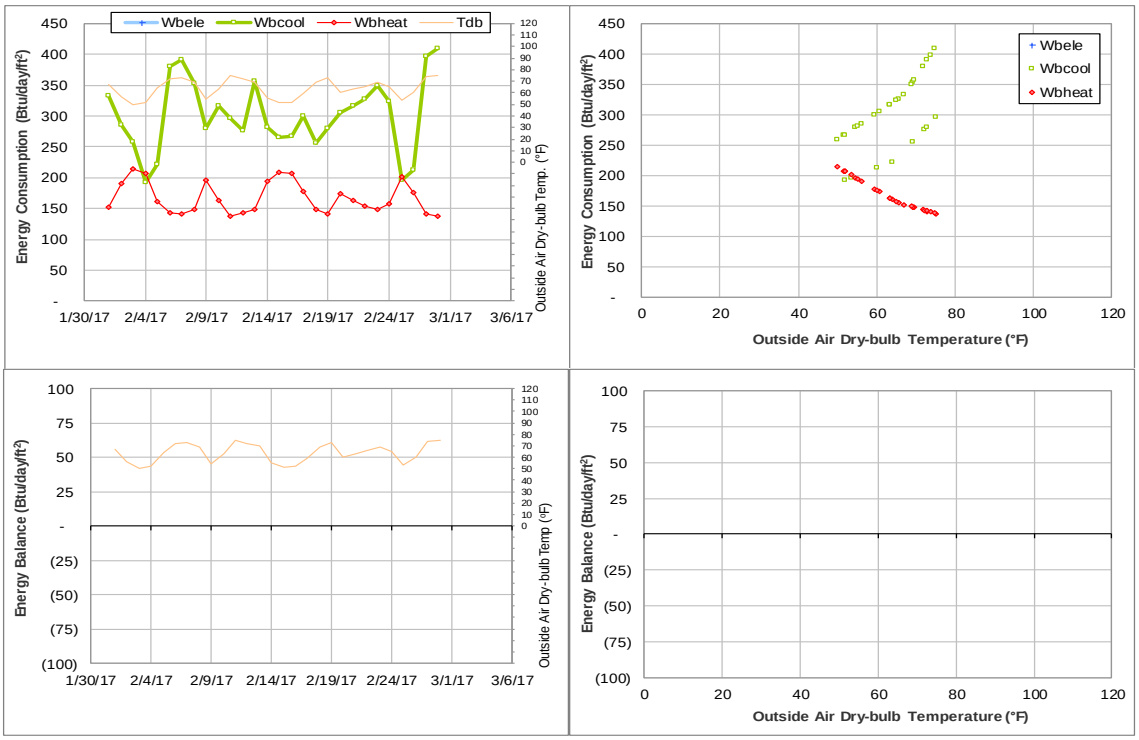



Figure V-8 Military Sciences Building TAMU BLDG # 456 Energy Balance Plot during February 2017

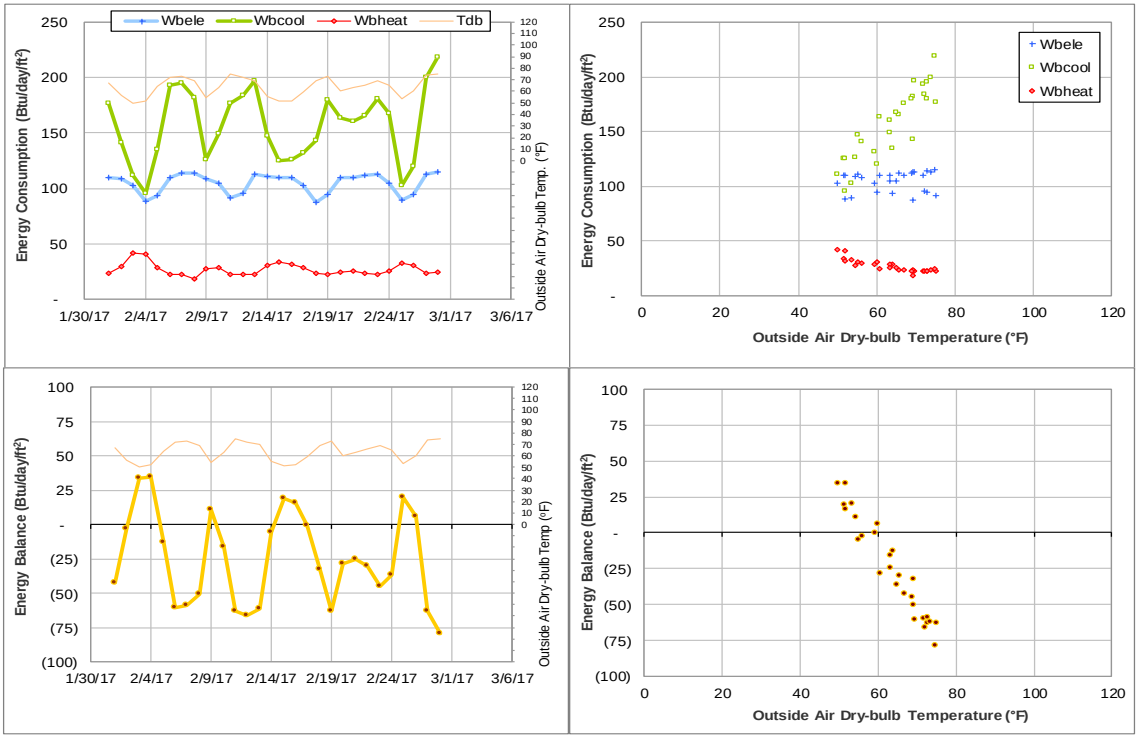



Figure V-9 Evans Library TAMU BLDG # 468 Energy Balance Plot during February 2017

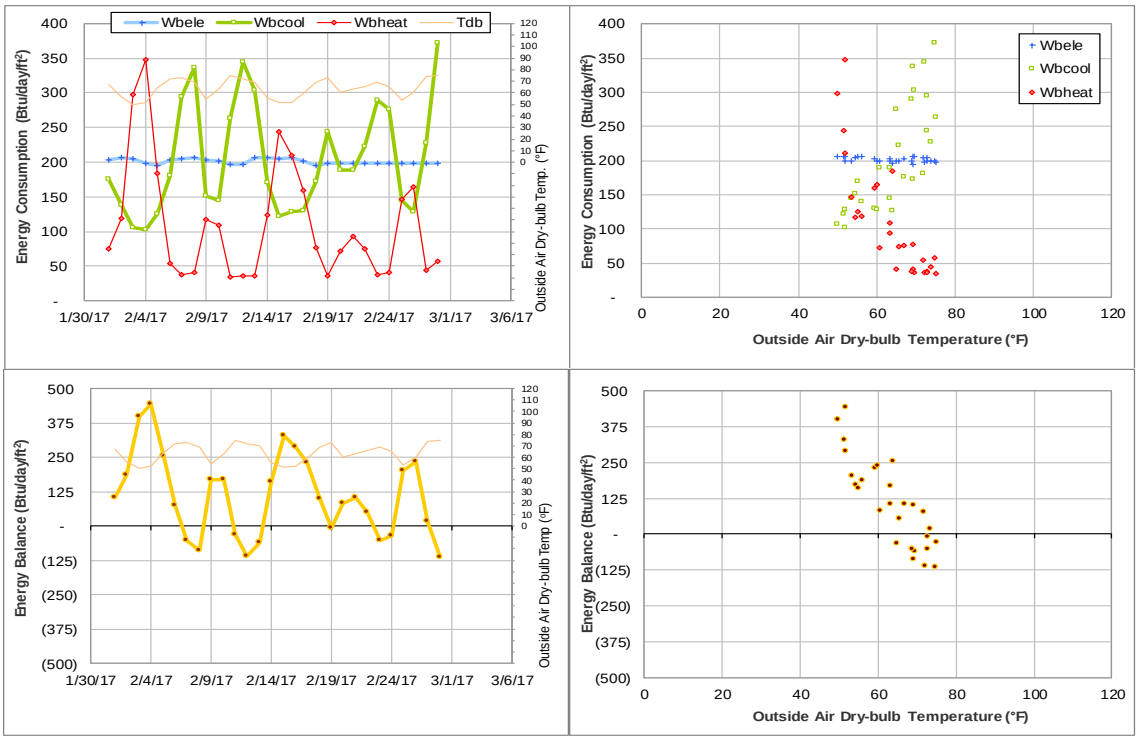



Figure V-10 Central Campus Parking Garage TAMU BLDG # 469 Energy Balance Plot during February 2017

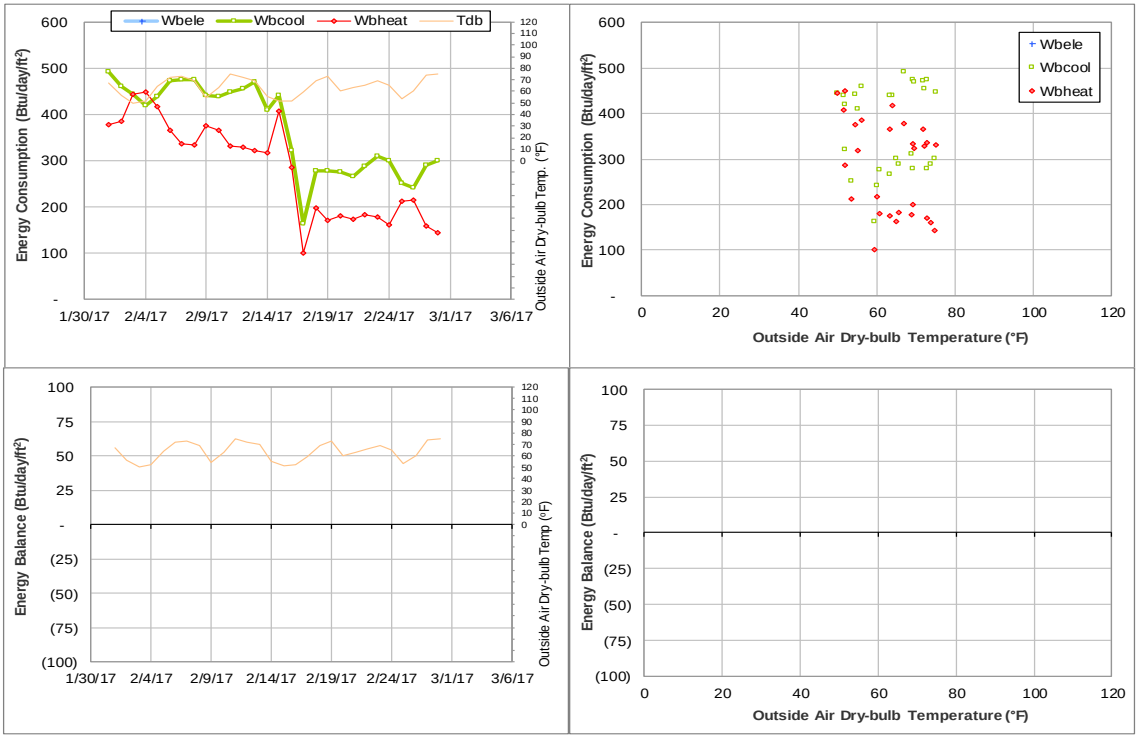



Figure V-11 Heaton Hall TAMU BLDG # 481 Energy Balance Plot during February 2017

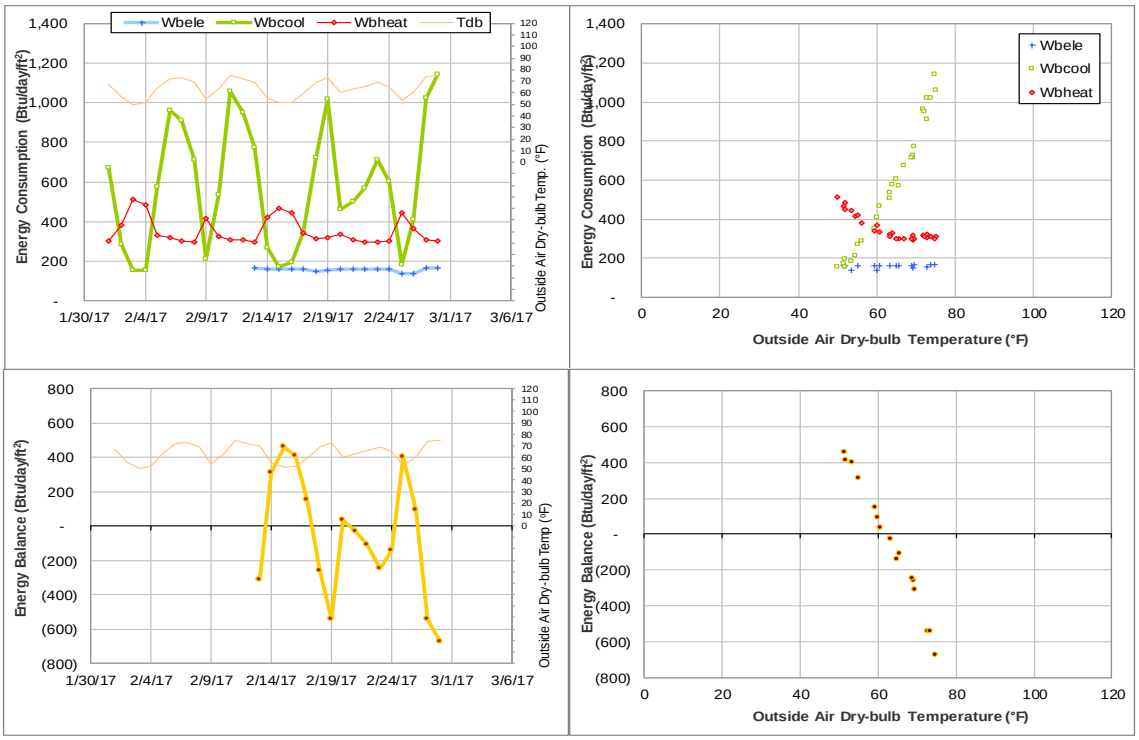



Figure V-12 Chemistry Building TAMU BLDG # 484 Energy Balance Plot during February 2017

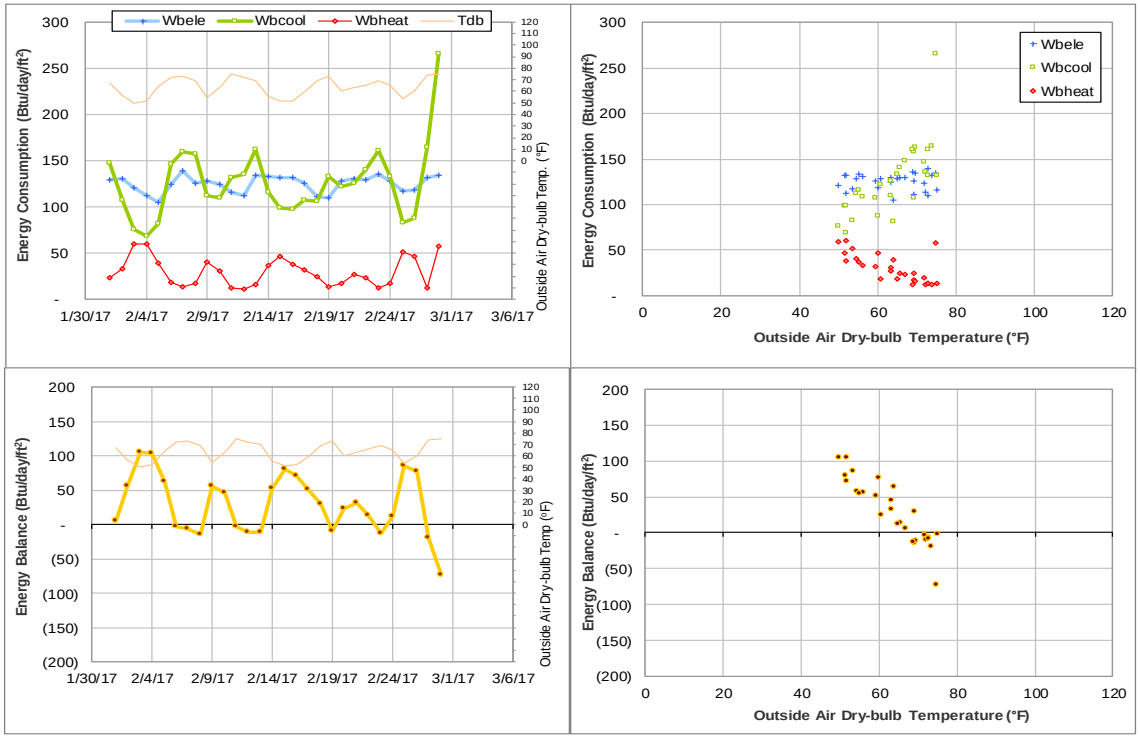



Figure V-13 Civil Engineering Building TAMU BLDG # 492 Energy Balance Plot during February 2017

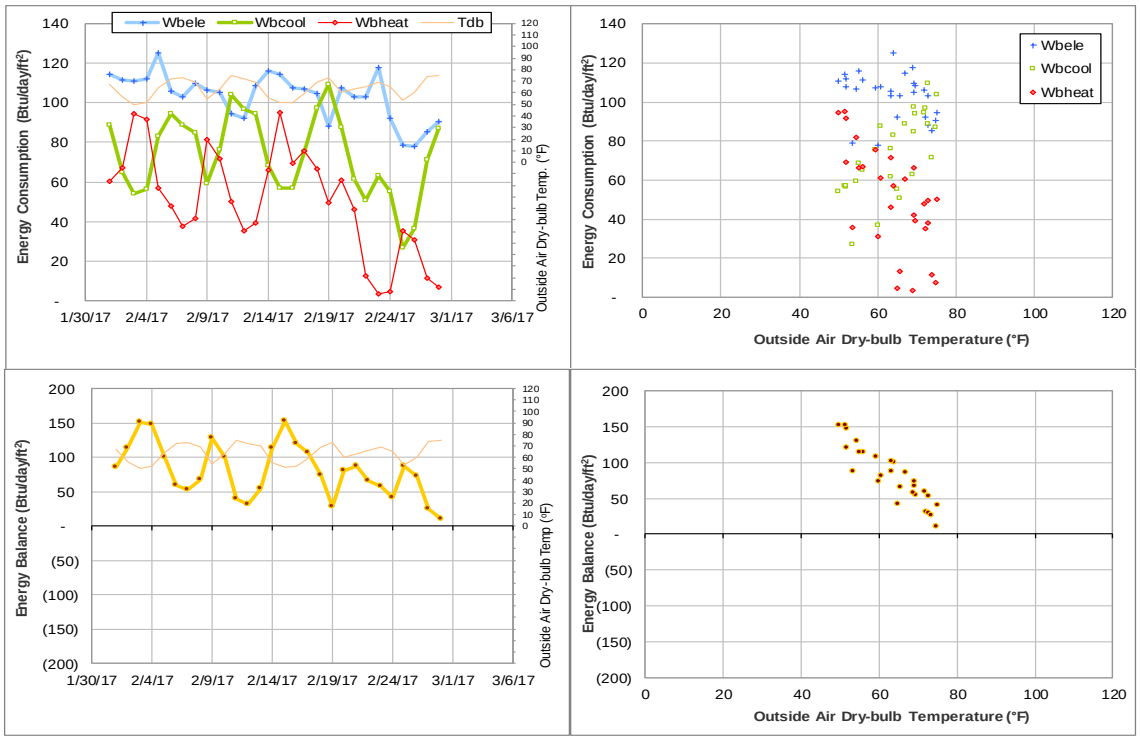



Figure V-14 Engineering Innovation Center TAMU BLDG # 499 Energy Balance Plot during February 2017

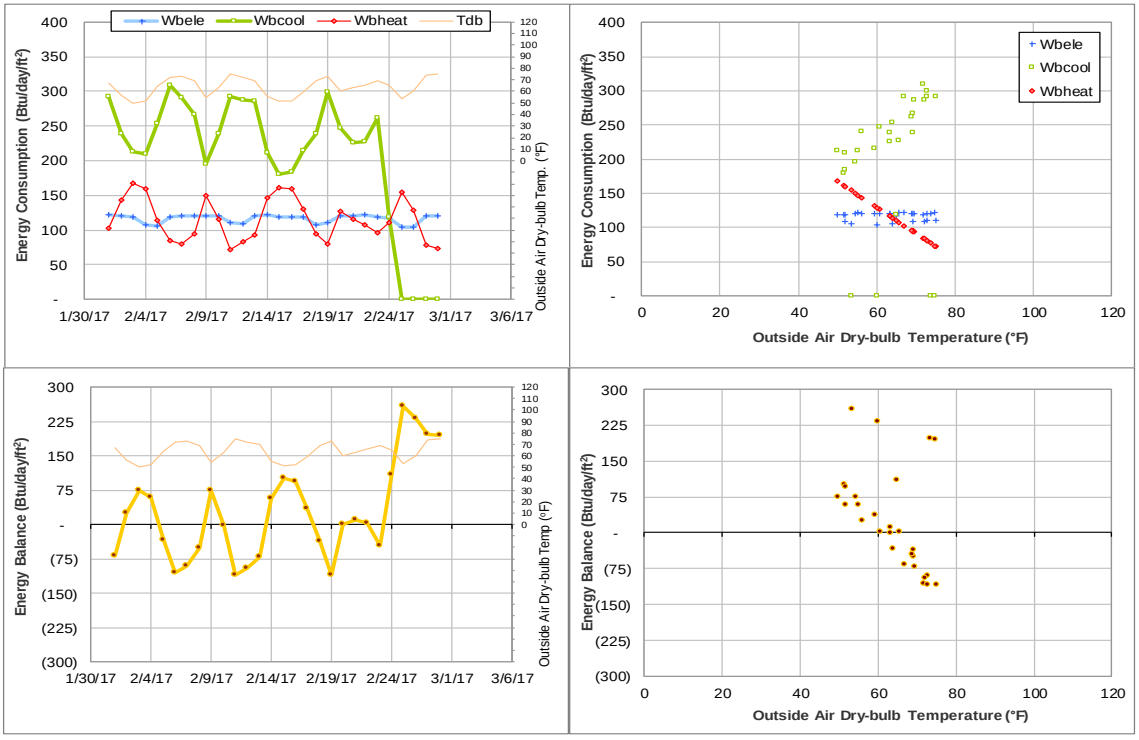



Figure V-15 Veterinary Teaching Hospital and Med Adm TAMU BLDG # 508 Energy Balance Plot during February 2017

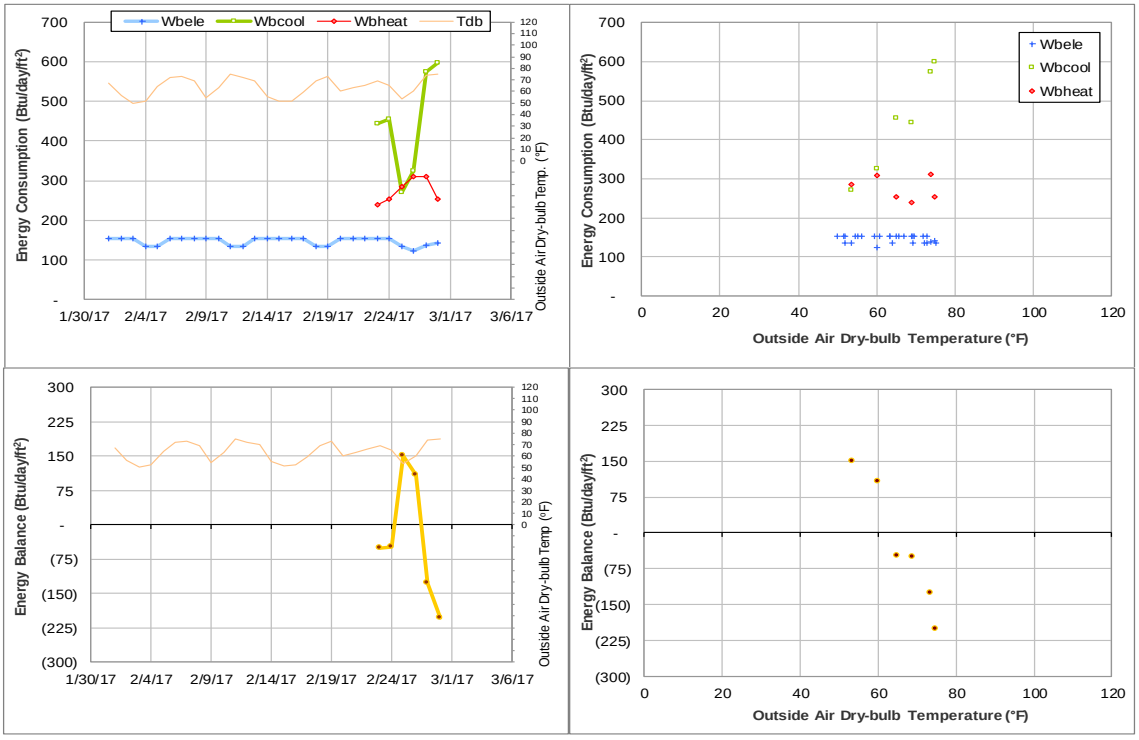



Figure V-16 Doherty Building TAMU BLDG # 513 Energy Balance Plot during February 2017

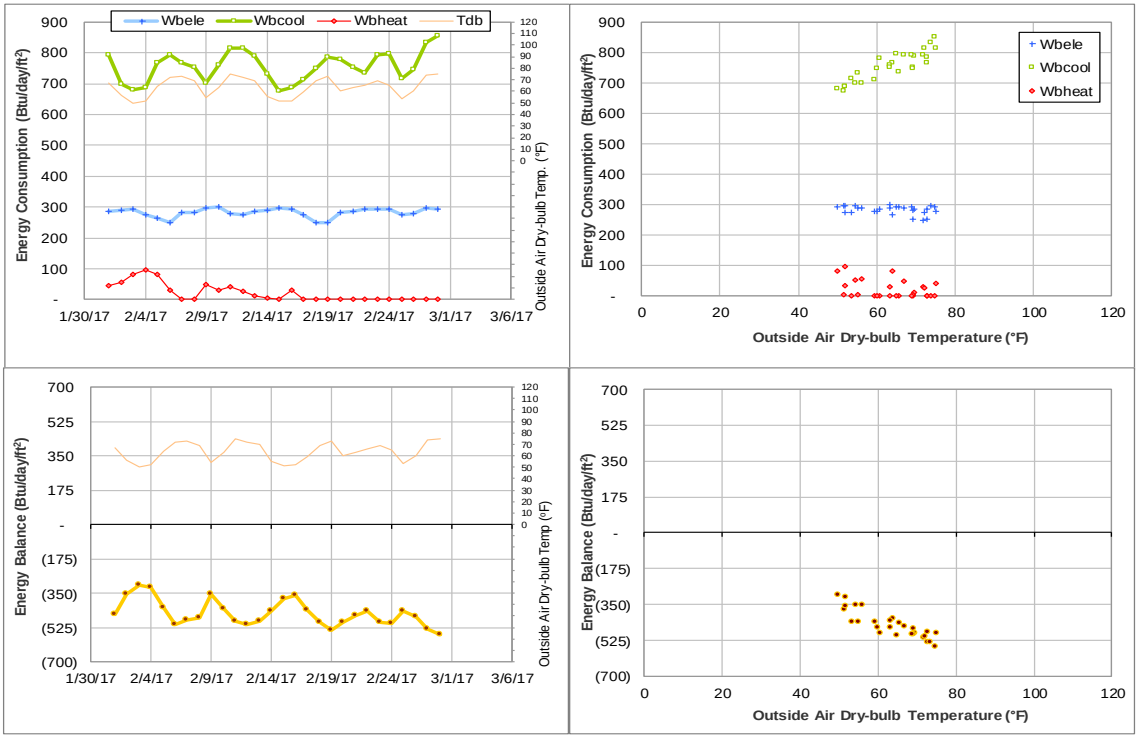



Figure V-17 McNew Laboratory TAMU BLDG # 740 Energy Balance Plot during February 2017

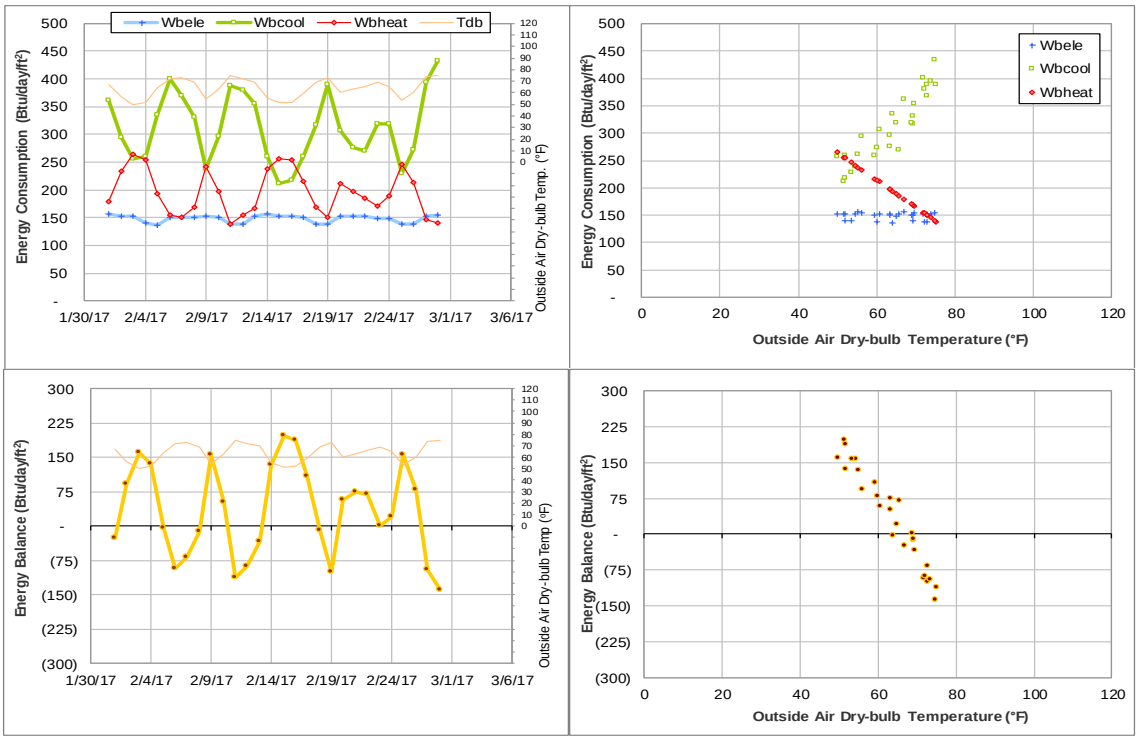



Figure V-18 Veterinary Medicine Administration TAMU BLDG # 1026 Energy Balance Plot during February 2017

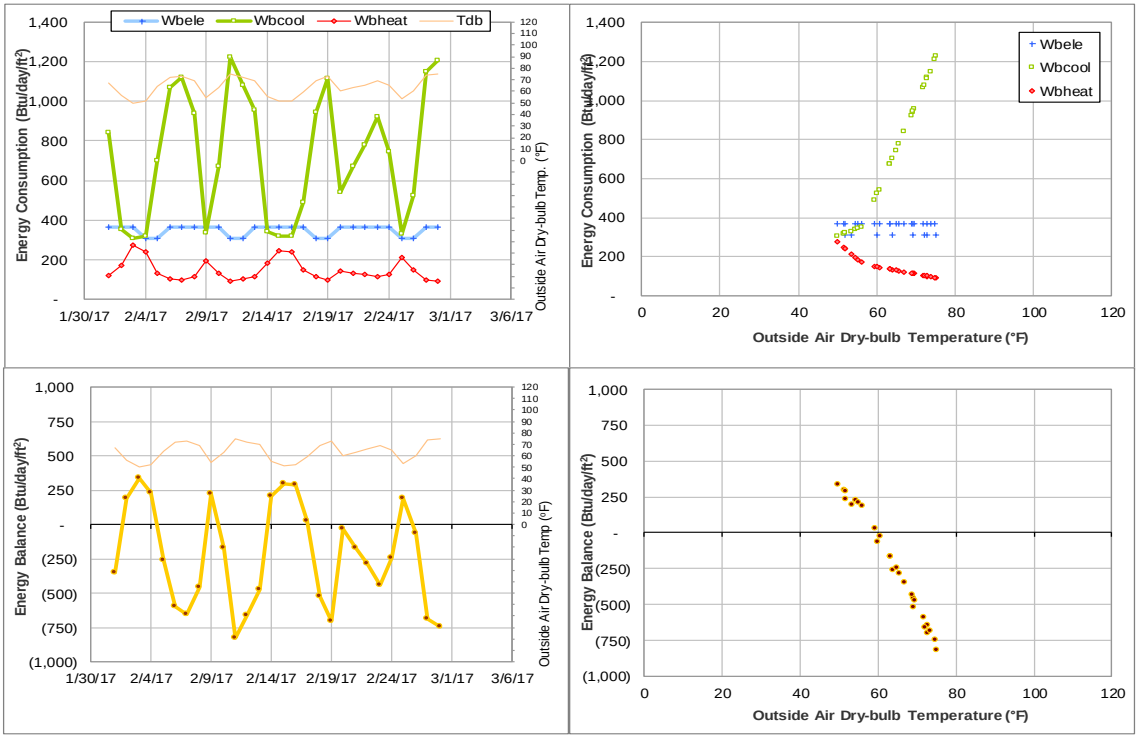



Figure V-19 Texas Vet Med Diagnostic Lab TAMU BLDG # 1041 Energy Balance Plot during February 2017

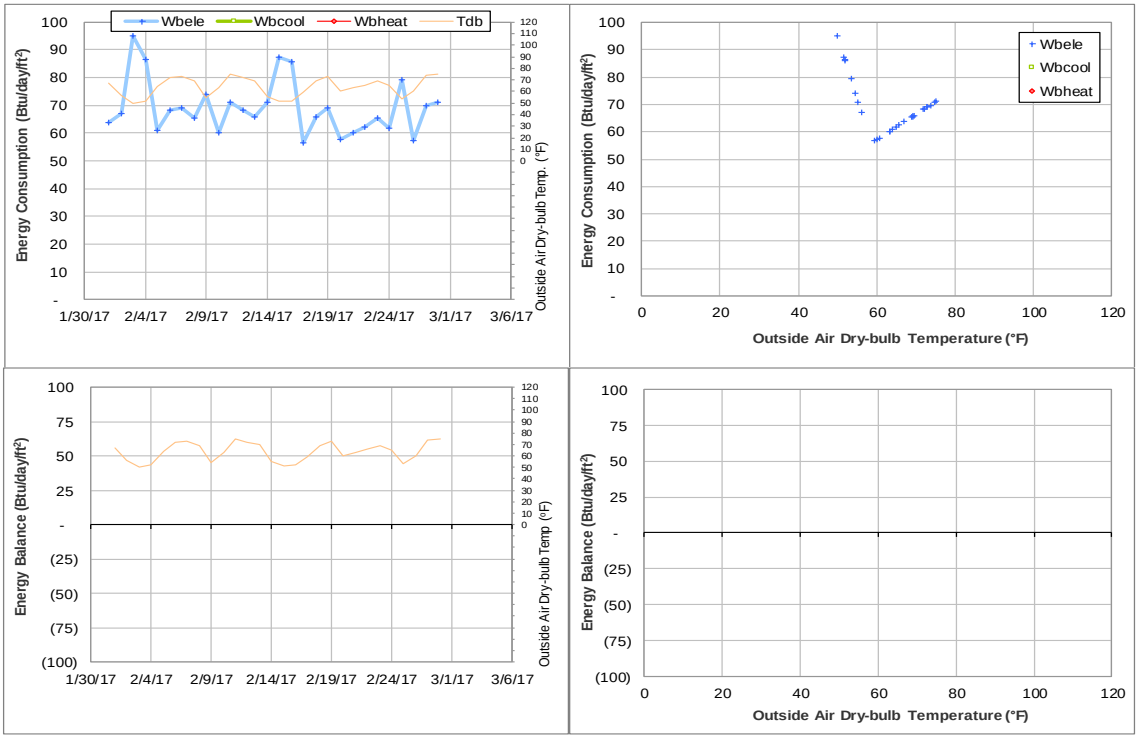



Figure V-20 University Apartments - The Gardens F TAMU BLDG # 1454 Energy Balance Plot during February 2017

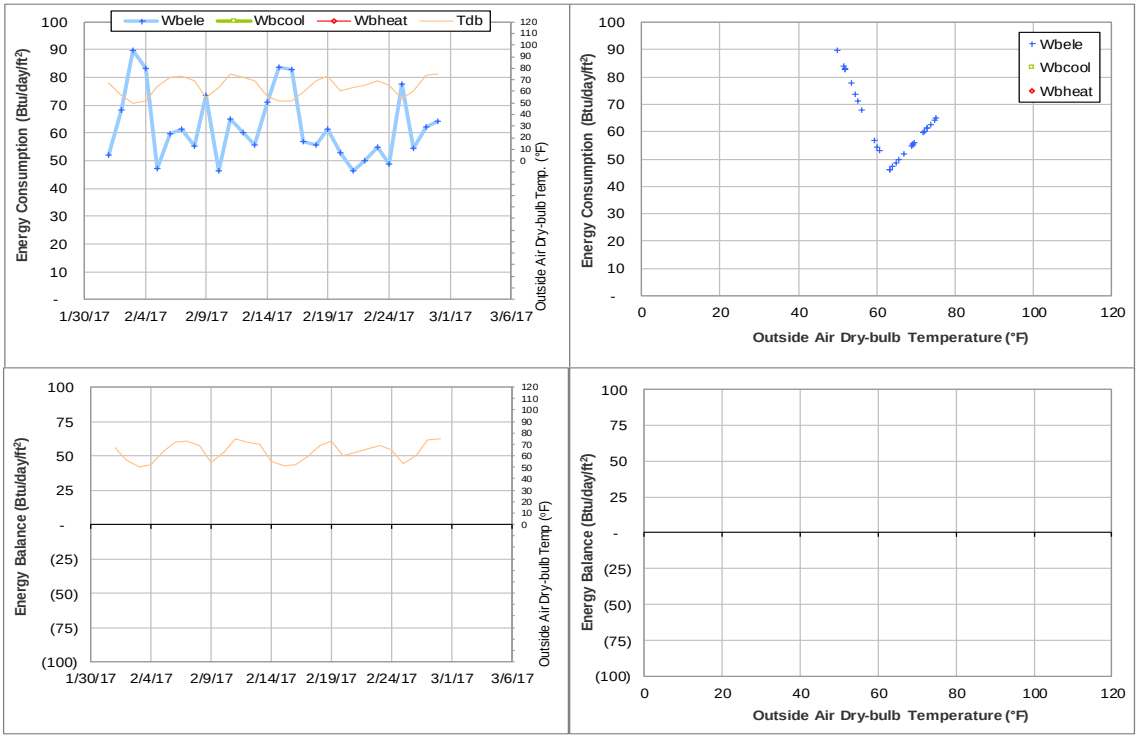



Figure V-21 University Apartments - The Gardens G TAMU BLDG # 1455 Energy Balance Plot during February 2017

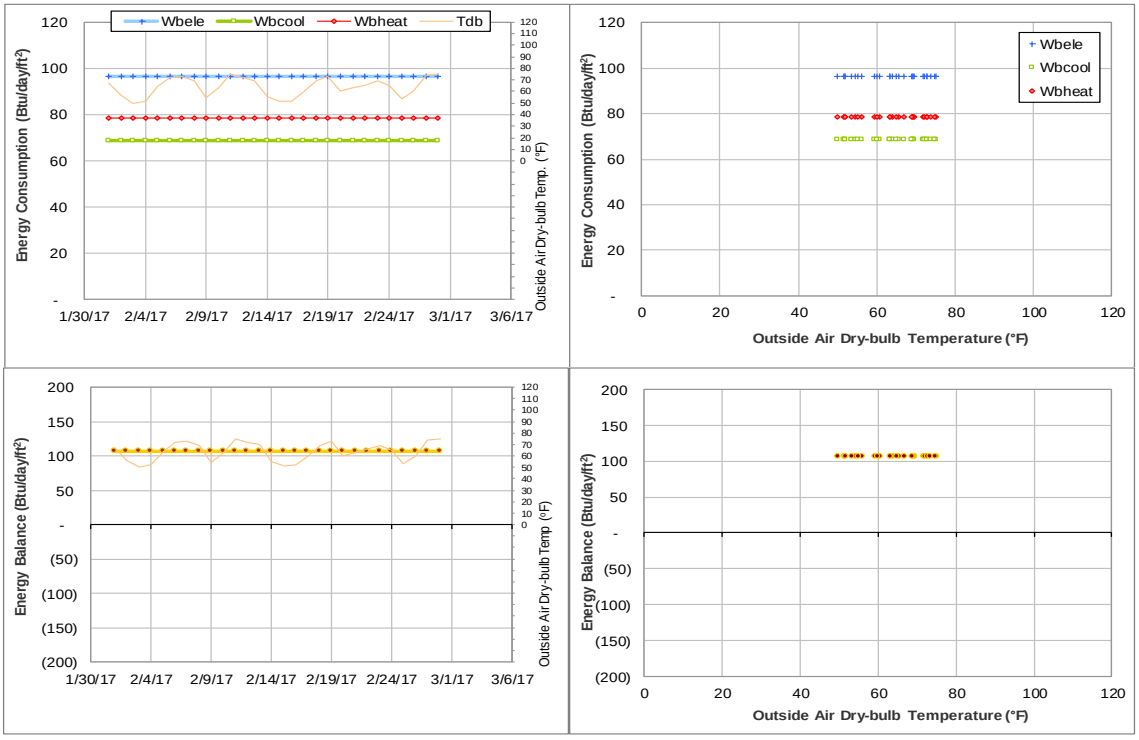



Figure V-22 Agriculture Public Building TAMU BLDG # 1537 Energy Balance Plot during February 2017

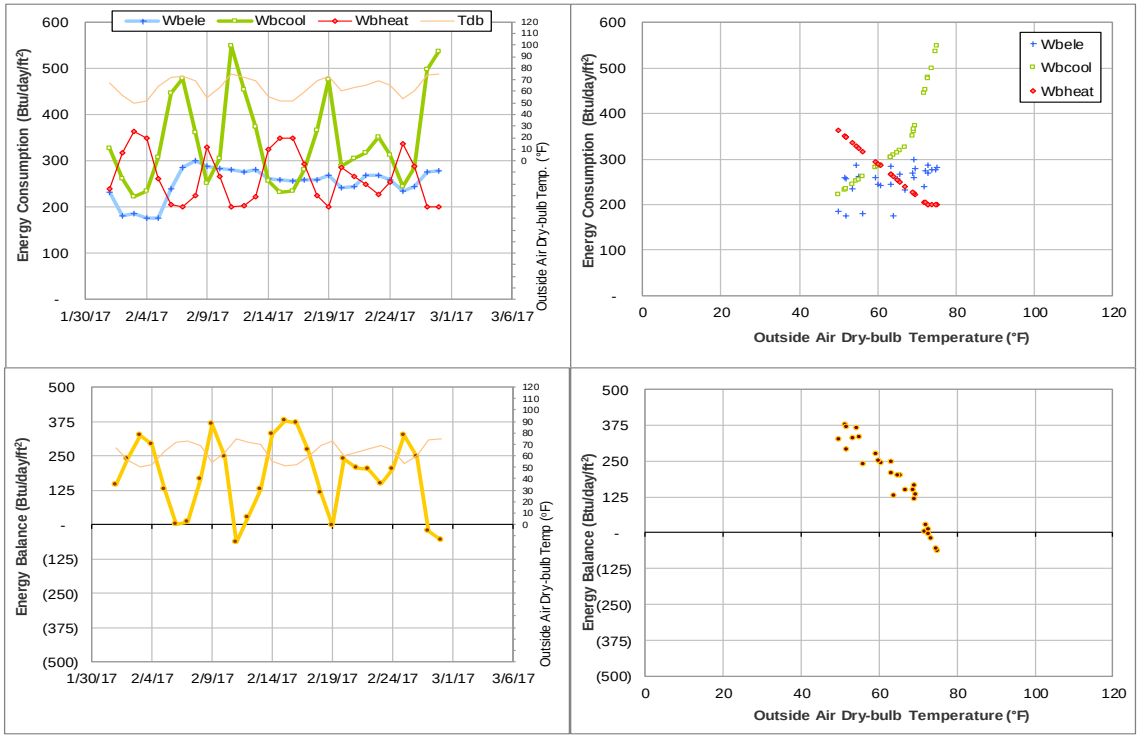



Figure V-23 Human Clinical Research Building TAMU BLDG # 1542 Energy Balance Plot during February 2017

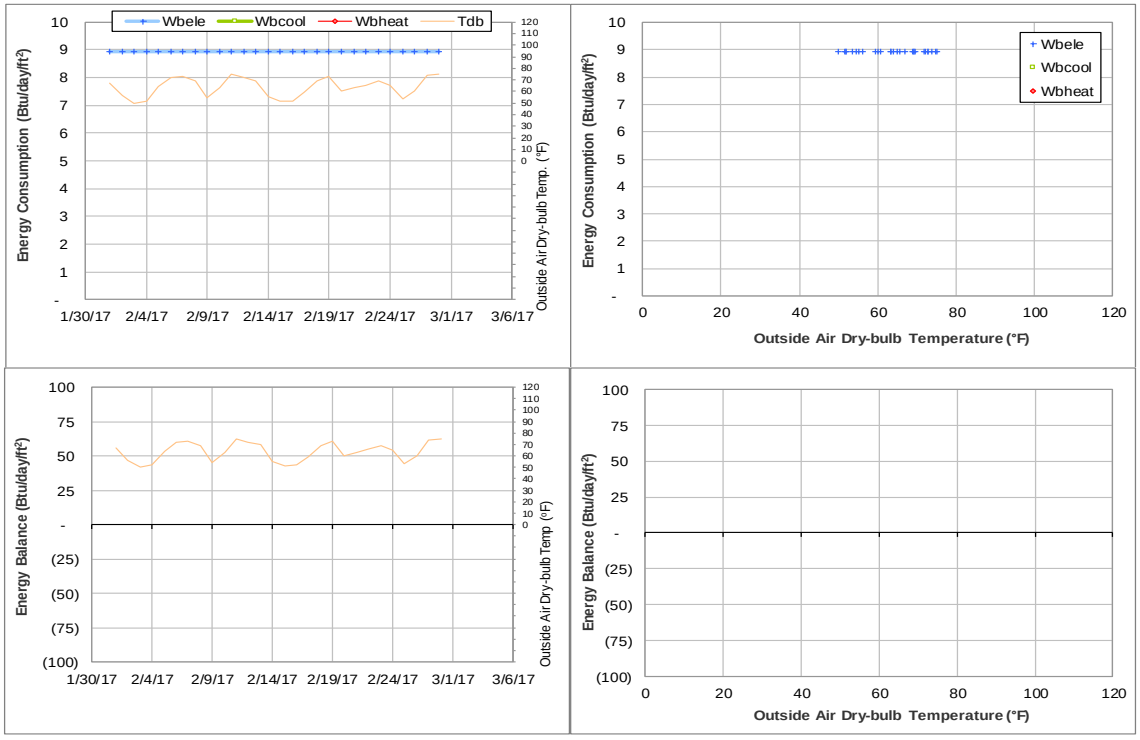



Figure V-24 Cain Garage TAMU BLDG # 1544 Energy Balance Plot during February 2017

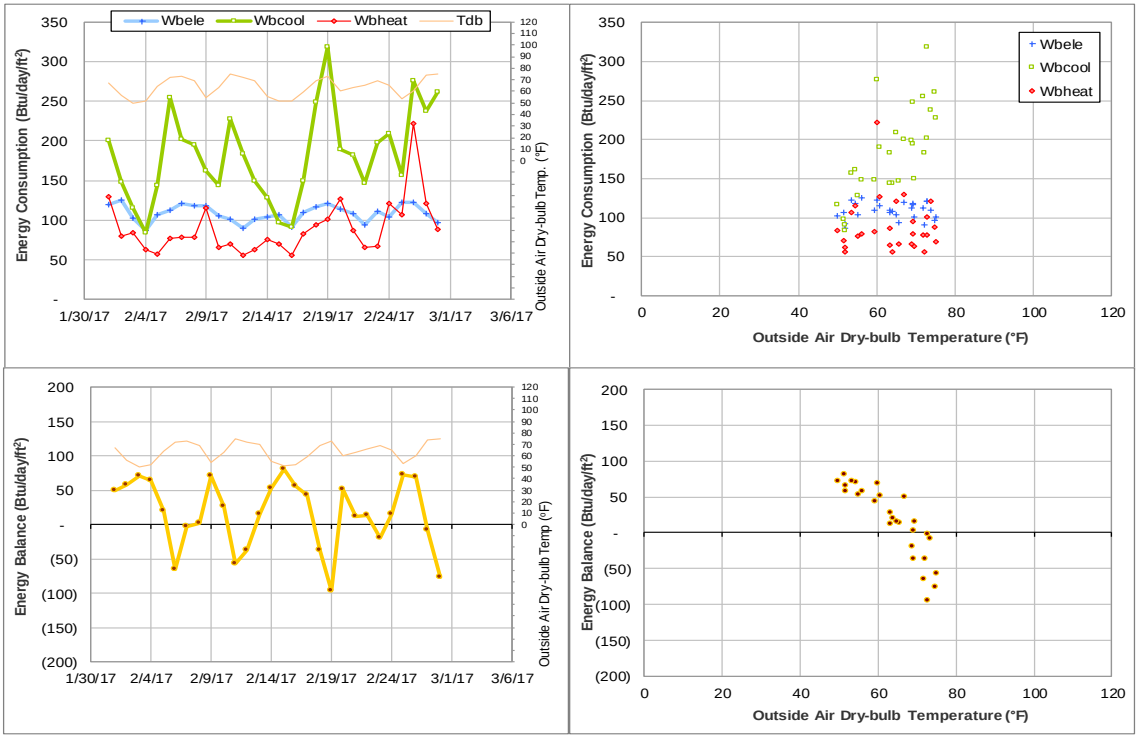



Figure V-25 Reed Arena and Cox-McFerrin Center TAMU BLDG # 1554 Energy Balance Plot during February 2017

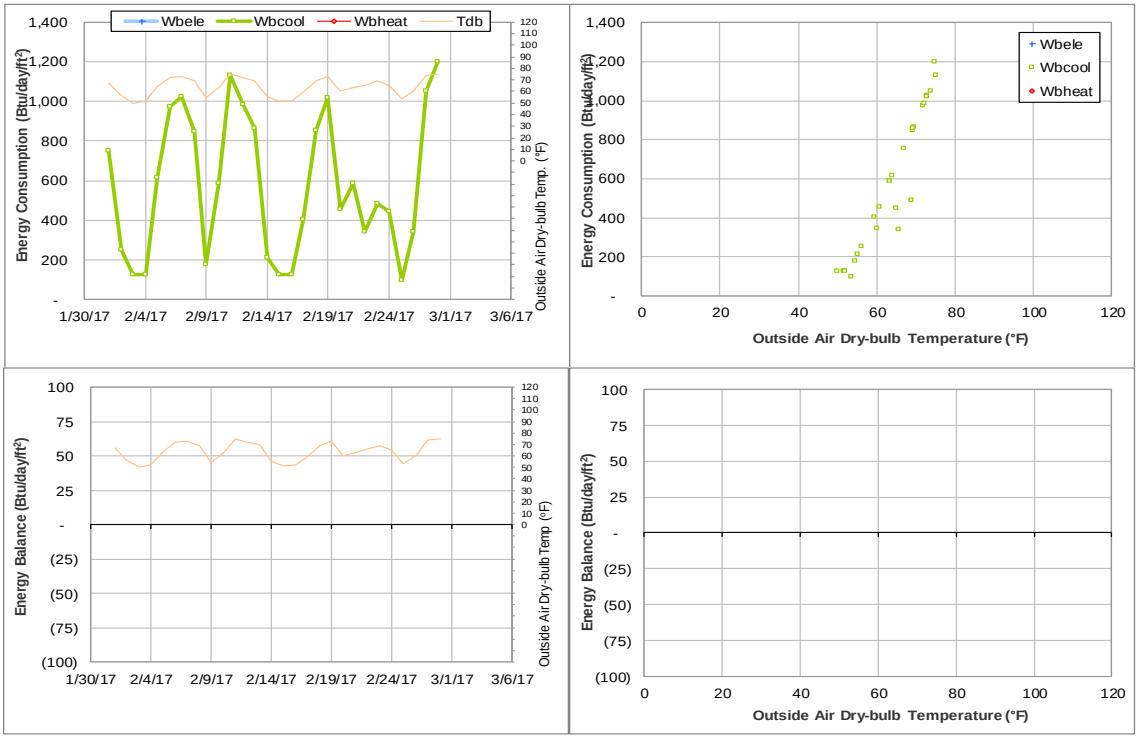



Figure V-26 New TVMDL TAMU BLDG # 1809 Energy Balance Plot during February 2017

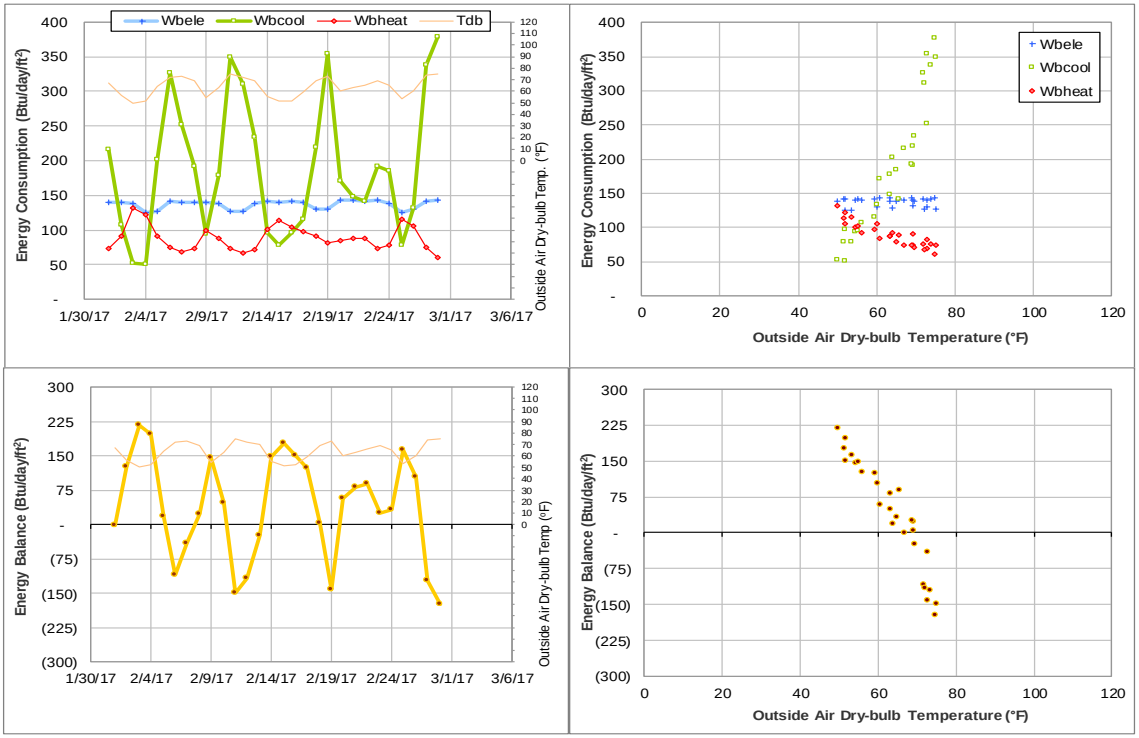



Figure V-27 Veterinary Medicine Building 1, 2, and 3 TAMU BLDG # 1812 Energy Balance Plot during February 2017

# VI. Appendix

ENERGY ANALYSIS GROUP

ENERGY SYSTEMS LABORATORY
TEXAS A&M ENGINEERING EXPERIMENT STATION

**Project:** TAMU: Energy Analysis*

**Report:** Energy Consumption Data Quality Assurance/Quality Control Assessment Report for the Month of February 2017

**Prepared for:**

Utility & Energy Services

Division of Administration

Texas A&M University

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Dr. Juan-Carlos Baltazar, and Dr. David Claridge

**Date:** March 2017

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